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A Donative Inscription of the Tenth Century ; the Sanskrit Original and its Substance in English : with Remarks on the Later Kings of Dhárá in Málava. By Fitz-Edward Hall, Esquire, D. C. L.

To our present stock of information respecting the rulers of Málava during the middle ages, the inscription now published furnishes, directly, nothing additional. At the same time, the researches which the record has suggested have discovered to me, that the conclusions, as regards those rulers, which have recently been put forth by the most highly accredited of living Indian archæologists, are, as a whole, very far from being reliable.*

* A note philological may seem to be not exactly opportune here, if excursive beyond Oriental limits. But, again, on the very score of irrelevance, it may detain the desultory glance of some who would instinctively treat in summary sort all aridity about the Kings of Dhárá, unutterable of name, as they must be to the uninitiated, and not at all calculated to verify the adage of *ignotum pro mirifico*. We,—by which is meant the members of our Society,—as persons who feel any interest in, or other than a perfunctory toleration of, the subjects of Asiatic languages, literatures, and antiquities, have dwindled to a most modest minority. And small is the blame; if, indeed, the idea of blame be not altogether gratuitous. As for our noble English tongue, however, our pride in it is a common sentiment; and indifference thereto is not to be anticipated. Leaving, then, for the public good, Sanskrit and all such repulsive mysteries a thousand leagues in the rear, I purpose to discuss the legitimacy of the much aggrieved quadrissyllable from which these observations took their departure.

An impression has got abroad, not among the unthinking, but among those who at least tacitly claim to think, that there is a kind of linguistic high-treason in lending countenance to the word ‘reliable’ and its conjugates; as if, to entire satisfaction, they were demonstrated of kin to the “socialless” of Madame D’Arblay, and such like monsters, now happily extinct. Proof to this effect might be adduced in copious abundance: but the witnesses presently to be summoned will no doubt suffice.

The late Mr. De Quincey shall enjoy the distinction of appearing first. “Alcibiades,” he says, “was too unsteady and—according to Mr. Coleridge’s

It is to the kindness of Col. Sir Richmond Shakespear, C. B., that I owe the communication of the relic whose contents are about to be abstracted. So little corroded by time are the two copper tablets, on which the document is engraved, that scarcely any difficulty attended the decipherment of it to the last character. The tablets were exhumed, I am told, not far from Indore.

The donor specified in the inscription is King Vákpatirāja, whose alternative name was Amoghavarsha. Among the epithets given to him are those of Favourite of the Earth and Favourite of

coinage—'unreliable;' or, perhaps, in more correct English too 'unrelyuponable.' " *Selections Grave and Gay*, Vol. XI., p. 244. The *Literary Churchman* for 1860, p. 3, in reviewing the Bampton Lectures for 1859, remarks; "Mr. Rawlinson has sometimes allowed this ungrammatical Americanism,—pp. 48, 49,—which is sadly forcing its way into our language. *Rely-on-able* is too gross; but *reliable* is absurd. *Trustworthy* is English." Again, at p. 442, we read of some one as being "more trustworthy, or—as our dreadful cockneys say—'reliable;'" the word having undergone naturalization, at least in the vicinity of Bow bells, within the short space of eleven months. Strange to say, intermediately, at p. 390, an original critique is admitted, which speaks of "reliable conclusions." To turn to the *Saturday Review*, in No. 283, for the 30th of last March, it wishes that "Mr. Shirley would not write such Jupiter English as 'reliable evidence.'" Yet, only fourteen pages back, a leading article of the same issue discourses of "reliable labour;" and in old numbers of the paper, and also in the very latest, the obnoxious adjective intrudes again and again. The Dictionary of Dr. Worcester, by far the best of our language, an American work which came out in 1860, supplies the next and last quotation: "Reliable—together with its derivatives, *reliability* and *reliableness*—is a very modern word, recently often met with; and it has the sanction of some highly respectable authorities. But it is ill formed, and it cannot properly have the signification in which it is always used. Potential passive adjectives in *able* * * are derived from active verbs, as *allow*, *allowable*; but adjectives derived from neuter verbs do not admit of this passive sense, as *perish*, *perishable*. In order to form a passive adjective from *rely*, we must annex *on* or *upon*, and give it the ludicrous form *reliable* or *reliuponable*, which would properly signify, 'that may be relied on or upon.' The adjective *uncomeatable*, found in the Tatler, and inserted by Johnson in his Dictionary, is formed on the same principle; and Johnson properly styles it 'a low, corrupt word.' But *uncomeable*, if there were such a word, would not admit of the sense, 'not to be come at.'"

Now, 'accountable' is that which may be accounted *for*. 'Available,' in one of its acceptations, is that which one may avail oneself *of*. 'Demurrable,' which we find in Hallam, is that which may be demurred *to*. Pope's 'dependable' is that which may be depended *upon*. 'Dispensable'—less common than 'indispensable,' which follows the same rule—is that which may be dispensed *with*. 'Disposable' is that which may be disposed *of*. 'Laughable' may fairly be added to the list; and so may 'self-confident,' 'self-denying,' &c. &c.

'Reliable' has, thus, analogies; not very many, it is true, and yet enough to prove that it keeps commendable company. But, even if it were in violation of all analogy, being vitally engrafted upon our language, any attempt to dislodge it will be nugatory, not to say illaudable withal, when we take into account, that it does not precisely signify 'trustworthy,' any more than 'reliance' precisely signifies 'trust.' No one, in our days, scruples at 'starvation,' or at 'truism;' and much more can be said for 'reliable,' than for either of them, that ought to relieve the qualms of an ultra-purist.

Fortune. He was successor to Sýaka, who followed Vairisinha, and he, Kṛishnarāja.* In the year of Vikramáditya 1031, corresponding to A. D. 974, in the month Bhádrapada, on the fourteenth day of its light fortnight, Vákpatirāja, at the instance of Kanhapaika, probably his chief counsellor, affixed, at Ujjayiní, his signature to the grant which forms the subject of the inscription. But the object of grant, the *vaḍára*† of Pippariká, is unintelligible. Pippariká was situated in, and appertained to, the *bhoga* of Gardabhapániya, which skirted the Narmadá. Its boundaries were as follows: on the east, Agáraváhalá; on the north, Chikhilliká; on the west, the Gardabha streamlet; and, on the south, Pis'áchadeva, a place of religious resort. The donee, who, it should seem, had immigrated from Ahichchhatra,‡ was Vasanta Áchárya, son of

* An inscription very like that I am now dealing with, naming the same kings, emanating likewise from Vákpatirāja, and dated only four years later, in A. V. 1036, has appeared in this Journal, for 1850, pp. 475—480. Another inscription, from Nagpeor, which speaks of Vairisinha and of Sýaka—misread Bhímaka,—will be found in the Journal of the Bombay Branch of the Royal Asiatic Society, No. VI., pp. 259—286. It has since been deciphered and translated anew by Professor Lassen, and, no doubt, with much greater fidelity than was observed by the dilettante who first published it.

† Or—as the original does not graphically characterize *v* from *b*—*baḍára*, possibly. And yet this does not help us to a meaning, on the supposition that the word is Sanskrit. It occurs in our instrument thrice. Though apparently denoting some division of land, grammar is against referring it to the etymon *vand*, *dividere*.

Equally strange is the word *bhoga*, presumably cognate, in import, with *vaḍára*.

Pippariká is derived, unquestionably, from *pippala*, the holy fig-tree. Analogously, many villages are, to this day, called Bamori, from *bamúr*, corrupted from *barbura*, the acacia-tree; Bánsá and Bánsí, from *vans'a*, the bamboo; Chirolá, from *chirol*, a tree missed by our botanists and lexicographers; Imaliyá, from *ámliká*, the tamarind-tree; Kanjiyá, from *kanjé*, a tree in the same predicament with the *chirol*; Khajúriyá, from *kharjúrí*, the wild-date; &c. &c. For Maua, vulgarly written Mow, see this Journal, for 1858, p. 228, foot-note.

Pippariyá, the modernized form of Pippariká, still denominates scores of places throughout Central India. A story goes, that, not many generations ago, a native prince in this quarter of the country gave a mendicant, on his asking, a warrant for a rupee, addressed to the head-man of Pippariyá. The holy rogue levied his imposition from Pippariyá No. I., and so on to and including Pippariyá No. CL.; for Pippariyás, what with towns, villages, and hamlets, so called, turned out to be scattered to that extent over his royal master's dominions.

‡ A region of this name is placed in the north of India by the scholiast on the *Haima-koś'a*, IV., 28. Also see the *Indische Alterthumskunde*, Vol. I., p. 602, first foot-note; and *Voyages des Pèlerins Bouddhistes*, *passim*. Professor Wilson—in his Translation of the *Vishnu-purána*, p. 187, twentieth foot-note—says, that “Ahichchhatra [read Ahichchhatrá] seems to have been applied to more than one city;” but he does not give his grounds for so thinking. Vasanta's country only is named. It was, probably, one with what is called, in a manuscript connected with the *Átharva-veda*, Ahichatra; which, as is inferrible from the con-

Dhanika Pandit.*

A translation of the verses which embellish the grant is added to the Sanskrit near the end of this paper. Some of them are not quite destitute of merit ; and more than one of the number has repeatedly been misinterpreted.

I proceed to add a few words on the later among what are erroneously called, by Professor Lassen, the kings of Udayapura;† whom he determines and arranges in three divisions, as follows:‡

I.

1. Udayāditya. About A. D. 613.
2. Devas'akti, son of U.
3. Vináyarāja,§ son of D.

text, may have been not far from the Vindhyas. See Professor Weber's Catalogue of the Berlin Manuscripts, p. 93.

Many is the pious Maráthá who never submits himself to the hands of his barber without repeating these lines :

आनर्ताऽहिच्छत्रः पाटलिपुत्रोऽदितिर्दितिः श्रीशः ।
क्षौरे स्मरणादेषां दोषा नश्यन्ति निःशेषाः ॥

“ By the recollection, on shaving, of Anarta, Ahichchhatra, Pátaliputra, Aditi, Diti, and S'ris'ta, the evils *incident to the operation* are all obviated.”

Without conscious sin,—but never uneffaceable by penance,—there are times when a Hindu cannot legally rid himself of his beard for five months current. The expiation, as has been seen, is not very burthensome. The razor being always an implement of bad omen, it is considered as unsafe to trust to one without ritual precaution against mishaps, however auspicious the day or the hour.

Professor Wilson—Translation of the *Vishnu-purána*, p. 190, seventy-fifth foot-note—unenquiringly calls the Anartas, “ foresters and barbarians in general.” Anarta is now known to have been a part of Gujerat, with Kus'asthalí for its capital.

* One Dhanika was author of the only exposition of the *Das'a-rúpa* that has come down to us, the *Avaloka*. There is some reason for believing that he may have flourished as early as the days of our inscription. He is twice cited in the *Sárngadhara-paddhati*.

Vasanta is a name unknown to literature, at least so far as my explorations have extended. Differeut is Vasantarāja Bhaṭṭa, the zoomantist ; for his father was S'ivarāja Bhaṭṭa.

† Professor Lassen mistakes as to the locality of this place. It is not in Bhopal, but in Gwalior, and lies about thirty miles to the north-east of Bhelsá. At present it is very thinly inhabited ; but it was evidently, at one time, a considerable town. Of its past history nothing is known. See the *Indische Alterthumskunde*, Vol. III., pp. 822, 823, foot notes.

‡ *Indische Alterthumskunde*, Vol. III., pp. 822—869, and p. 1169.

§ Professor Lassen found Vanyarāja printed ; and he has changed it as above. The true name on the copper-plate is Vatsarāja.

4. Nágadatta,* son of V.
5. Rámabhadrā, son of N.
6. Bhoja I., son of R.
7. Mahendrapála I., son of B.
8. Bhoja II., son of M.
9. Mahendrapála II., brother of B. About A. D. 813.
10. Vináyakapála, son of M.† About A. D. 830.
11. Mahendrapála.
12. Karmachandra.
13. Vijayánanda.

} Till about A. D. 850.

II.

14. Vairisinha. After A. D. 921.
15. Síyaka, son of V.
16. Munja, son of S. After A. D. 961.
17. Sinharāja, younger brother of M. After about A. D. 985.
18. Bhoja, son of S. After A. D. 997.
19. Jayachandra, son of B. After A. D. 1053, till about 1063.

III.

20. Súravíra.
21. Gondala, son of S.
22. Aribalamathana, son of G. From about A. D. 993 till 1053.
23. Udayáditya, son of A. After A. D. 1053.
24. Naravarman, son of U. After A. D. 1093.
25. Yas'ovarman, son of N. After A. D. 1133.
26. Jayavarman or Ajayavarman, son of Y. After A. D. 1150.
27. Vindhyavarman, son of J. After A. D. 1170.
28. Subhāṭavarman, son of V. After A. D. 1190.
29. Arjuna, son of S. From A. D. 1210, probably till 1225.

As I shall prove in detail, this long list, to represent the truth as concerns Central India, must submit to a deduction of at least fourteen persons. No. 1 is a duplicate of No. 23; Nos. 2—10, nine princes, as Professor Lassen counts them, have nothing to do with Málava; No. 19 is, most likely, a pure fabrication; Nos. 20 and 22 are certainly of that character; and Gondala, No. 21, was we know not what. Other retrenchments will be spoken of in due course.

* Rightly, Nágabhāṭa. Again the Professor has taken an unconfessed liberty.

† Son of Mahendrapála, No. 7. No. 9 is nothing. Professor Lassen has here been misled by bad decipherment. Vináyakapála was half-brother of Bhoja II.

Of Nos. 1, 20, &c., I wrote, in October, 1858, independently of the theory of Professor Lassen :

“ I now redeem the promise which I once made,* to demonstrate, that a mistake has been committed in throwing back Udayáditya to A. D. 613. Two facsimile copies of the Udayapura inscription, which I was at much pains in getting executed, have been of material aid to me towards arriving at a determination on this point.

“ The person for whom that wretched scrawl was indited, calls himself a descendant of Udayáditya of Málava : but it is clear, that, whether so or not, he knew nothing of Udayáditya’s family. The word *súravíra*—rightly, *s’úravíra*—in the monument adverted to, is not the name of a king. Gondala is the first regal personage whom it notices. His son seems to be Gyátá,—for which Pátá has been printed—the vernacular corruption, perhaps, of Jnátá, nominative of Jnátṛi. *Aribalamathana*, if such be the true reading, is an epithet of the doubtful Gyátá, and, by no possibility, an appellation. Udayáditya is represented as son of the last ; and he is distinctly stated to have been ruling in Samvat 1116, or S’aka 981, i. e., A. D. 1059. For four hundred and forty-six years subsequently, it is alleged, the Yavanas had been in the ascendant : and this term brings us to Samvat 1562, S’aka 1447—which should be 1427—or the year 4607—not 4669, as printed—of the *Kali-yuga*, i. e., A. D. 1506 ; at which time the person at whose instance the inscription was written appears to have assumed some sort of authority. Seven years later, in *S’rímukha*—an item wanting to Captain Burt’s copy—or A. D. 1513, he engaged in a pious transaction in honour of S’iva. His name was Ságara-varman,—metamorphosed, as printed, into Yogara-dharmma,—commonly styled Chánddev, or Chandra Deva. Nor is S’áliváhana given as son of Udayáditya.

“ More might be said on the present topic ; but it is enough, if I have shown that we have here to do with a thing of no importance, abstracted from its liability to beget error. See the Journal of the Asiatic Society of Bengal, for 1840, pp. 545 etc.†

“ Professor Lassen, I am told, has accepted the inscription thus

* Journal of the American Oriental Society, Vol. VI., p. 517, note c.

† In the Vol. for 1838, p. 1056, the inscription analyzed above is first spoken of.

disposed of, as sufficient voucher for antedating Udayáditya some four hundred and fifty years. It is scarcely credible.”*

“The first well authenticated fact,” says the Professor, “is, that Udayapura was founded by Udayáditya in 613; which city he named after himself.”† Of these assertions, on the contrary, there is not a particle of proof. Moreover, it was ill-advised to ignore Udayáditya’s filial relation to Bhoja,—a thing beyond dispute,—out of deference to the indications of an inscription which, even as it stands printed, should carry, to any properly sceptical mind, internal evidence of its worthlessness.

Devas’akti and the nine following princes of the Professor’s series are included among the kings of Málava, without the slightest reason that can endure investigation. In continuation of the passage quoted in the last paragraph, where mention is made of Udayapura and Udayáditya, we read: “Whether King Devas’akti, who is first named in the inscription from that city, was his immediate successor, can neither be affirmed nor denied.” The inscription referred to is on copper; and the supposition, on which the Professor’s reasoning hereabouts is mainly grounded, that it came from Udayapura, is a fiction of carelessness that may indeed excite surprise. A foot-note will render this sufficiently patent.‡

With regard to Mahendrapála, Karmaehandra, and Vijayánanda, it is well to suspend decision. Much better warrant than that of the *Ayín-i-Akbarí*§ is requisite as an inducement for prudence to deal

* Journal of the American Oriental Society, Vol. VII., pp. 34, 35.

† *Indische Alterthumskunde*, Vol. III., p. 827.

‡ See this Journal, for 1848, pp. 68—72. The contribution occupying those pages is headed “Inscription from the Vijaya Mandir, Udayapúr, &c.” Two inscriptions are treated of, the first of which, a hymn to the sun, is expressly stated to be “from the Vijaya Mandir at Udayapúr;” while no clue is given to the source whence the second was obtained, that in which are the names of Devas’akti, &c. In the Index to our Journal, published in 1856, we are informed, at p. 208, that from what locality it came is “not known.” Its translator was Bábú Rájendralál Mitra, who likewise compiled the Index. “The donor,” says the Bábú, “is evidently a scion of the well-known Pála dynasty of Gaur;” a conclusion which must be abandoned.

Vináyakapála, a lineal descendant of Devas’akti, at a time not ascertained, bestowed, by grant, a village near Benares on one Bhaṭṭa Bhulláka. Vináyakapála is signalized as proprietor of numerous vessels. He must, then, have dwelt in the vicinity of some river, or, at least, have had one under his authority. His capital was Mahodaya; a fact which all previous investigators have most unaccountably overlooked. Mahodaya is a name of Kanyakubja, or Kanoj. See the *Haima-kośa*, IV., 39.

I purpose to return, on a future occasion, to the subject here glanced at.

§ London edition of the English translation, Vol. II., pp. 49, 50.

with them after the manner of the German antiquary. No credit is to be placed in the date he has appointed for them, or in the two dates given just before.

A laudable soundness of judgment has been exercised in respect of the succession of Nos. 14—18.* Yet there is no foundation, beyond risk of challenge, for the belief, that any of them but Bhoja dominated over Málava; and his domination seems to have embraced but a part of that country.

So long as no better guarantee is producible than the careless compilation of Abulfazl, for the positions, that Bhoja had a son Jayachandra, and that Jayachandra was a king, he may confidently be accounted mythical.†

Beginning with Bhoja, one line of princes who have ruled in Málava will now be enumerated, together with the known regnal years of each member of it.

I. Bhoja. A. D. 1042.‡

* Good use has here been made of the Nagpoor inscription,—referred to in the second note to this paper,—which Professor Lassen has reedited and retranslated from a copy in fac-simile. I have no access to the fruit of his researches on it, and must, therefore, take upon trust his Munja and Sinharāja as uncle and father of Bhoja. In the balance against a genuine inscription, the combined weight of the *Bhoja-charitra* and *Bhoja-prabandha* is as nothing. Now that we have Sinharāja, we may dismiss Sindhula as a mere invention. Nor need we be deterred from this measure by Colonel Tod's assertion, that Sindhula is read on marble at Madhukurgarh. For a parallel to the Colonel, in consistency of uncriticalness, and so in credulity, we should have to go to the Hindus themselves; and we are scarcely called upon to hesitate in presuming, that he altered the reading of his inscription into conformity with the silly romances to which he so easily accorded credence. See the Transactions of the Royal Asiatic Society, Vol. I., p. 226.

† See the *Indische Alterthumskunde*, Vol. III., p. 855; and the *Ayín-i-Akbarí*, Vol. II., p. 46.

‡ See Colebrooke's Miscellaneous Essays, Vol. II., p. 462.

“The Márwāḍī translation of the *Sinhāsana-dvātrins'atī*—if such an authority be worth anything—represents Bhoja to have been reigning in *Samvat* 1066, or A. D. 1009. With greater probability, Bhoja is found spoken of as contemporary with Karna of Chedi, against whom Bhīma Deva waged war between A. D. 1022 and 1072. *Rās-mātā*, Vol. I., pp. 83 and 90.” *Tāsavadattā*, Preface, p. 50.

In Colebrooke's estimation, the story that Bhoja was predicted to be king for fifty-five years, seven months, and five days, not improbably “is grounded upon a true tradition, that eventually such was the duration” of his reign. Transactions of the Royal Asiatic Society, Vol. I., p. 228.

Bhoja's ancestors were certainly regal; but they cannot be positively assigned to Málava.

In the *Rāja-martanda*, Bhoja of Dhára is entitled, by its author, Raṇaran-gamalla.

The verses said to have been reported to Munja,—when he supposed that Bhoja

II. Udayáditya, son of B.*

had been put to death in pursuance of his orders,—as his victim's last words, are these :

मान्धाता स महोपतिः कृतयुगेऽलङ्कारभूतो गतः
सेतुर्धेन सहोदधौ विरचितः काऽसौ दशास्यान्तकः ।
अन्ये चाऽपि युधिष्ठिरप्रभृतयो यावन्त एवाभवन्
नैकेनाऽपि समं गता वसुभतौ मन्ये त्वया यास्यति ॥

“King Mándhātṛi, the ornament of the golden age, has passed away : and where, too, is the slayer of Das'áya, *Ráma*, who threw a bridge over Maho-dadhi, the southern sea ? All other monarchs, likewise, that have flourished, Yudhishṭhira and the rest, *where are they ?* None of these did the earth accompany : but I imagine that it will accompany thee.”

These lines are wrought into the *Bhoja-prabandha*. An earlier work in which they occur is the *S'ārngadhara-paddhati*, written in A. D. 1363. There they appear as an anonymous extract. Their substance, as given by Abulfazl, according to the version of Mr. Gladwin, is : “What kind of man art thou, who, from the darkness of thy soul, stainest thy hands with the flood of the innocent ! No monarch hath carried with him, at his death, either kingdom or treasure ; but you suppose that your reign is to be immortal, and that you will experience nothing but happiness.” *Ayín-i-Akbarí*, Vol. II., p. 46. This is, indeed, free handling with a witness.

Largely as the vogue has prevailed of placing reliance on the *Bhoja-prabandha*, it is strange that any person imbued with the smallest spirit of criticism can avoid to class it, for all historical purposes, with such vouchers as the Letters of Phalaris and the Book of Judith. Now that its age is settled, there will henceforth be less apology than ever for deeming it other than a collection of silly legends. Speaking of its author, Dr. Aufrecht says : “De Ballálæ ætate hæc compcri. Filium Ranganátham, nepotem Vis'warápam habuit, qui astro-nomi seculo septimo decimo incunte vixerunt. Ipse, igitur, exeunte seculo sexto decimo floruit.” *Catalogus Cod. Manuscript., Sanscrit., Pars. I., p. 151.*

It is of very slight importance that Colonel Tod refers the *Bhoja-charitra* to Rájavallabha, disciple of Mahítílaka Súri, a Jaina, and adds : “He is also the author of the *Bhoja-prabandha*. When and where he wrote, though not specified, may be presumed to have been at Dháránagarí, while Rájá Bhoja was still alive.” *Transactions of the Royal Asiatic Society*, Vol. I., p. 219. On this there is the following annotation by Colebrooke : “The epigraph of the *Bhoja-prabandha*, according to most copies of it, names Ballála as the author. But, in some copies, the name of Vallabha appears. Mr. Wilson considers both to have been by several centuries posterior to Rájá Bhoja.” Again : “It is not altogether likely that the *Bhoja-charitra* and *Bhoja-prabandha* should have been works of the same author. The discrepancies are too great to have come from the same pen.”

Colonel Tod's informant, it is reasonable to conjecture, was a Jaina ; and the Jains are unscrupulously given to arrogating as their own, persons and things to which they have no good right. Vikramáditya, if we are to believe them, was of their communion ; and so was Bhoja. Nor do they stop here. One of their claims, in particular, is of the absurdest. Malayagiri, in his gloss on the *Nandí-sūtra*, declares that Mahāvira wrote the Vedas. To bear out this declaration, he cites, ridiculously enough, the ensuing invocatory verse, as from the grammar of S'ákataýana, or else from its author's exposition of his text :

त्रौवीरममृतं ज्योतिर्नत्वाऽदि सर्ववेदसाम् ।

* In one inscription, that from Nagpoor, Udayáditya is literally called son of Bhoja ; and in another, which also was accessible to Professor Lassen, the language marking their relationship is such as to preclude all misgiving.

III. Naravarman, son of U. A. D. 1104—1133.*

IV. Yas'ovarman, son of N. A. D. 1133—1143.†

V. Jayavarman, son of Y.‡

VI. Vindhavarman, son of J.

Udayāditya was, very likely, in power in A. D. 1059, however reluctantly we receive the word of such as Śāgaravarman, or his historicaster. See a previous page.

*See the Journal of the Bombay Branch of the Royal Asiatic Society, No. VI., pp. 259—286; and Colebrooke's Miscellaneous Essays, Vol. II., p. 303, sixteenth foot-note.

In the Madhukargarh inscription, Naravarman's date answers to A. D. 1107.

Naravarman had a younger brother Lakshmīdhara. In one place he is awkwardly called, from prosodial exigency, Ś'rilakshma Deva; the word Deva being an affix of respect. Professor Lassen puts Ś'rilakshmi. But this breaks the measure. Besides, Ś'rilakshmi, with Deva after it, cannot denominate a man, unless the additional word be taken as component part of a compound with which it ends, in the sense of Vishnu. Then, to avoid tautology, the Ś'ri is to be regarded as honorific; and we get, as the residuum, Lakshmīdeva. See the *Indische Alterthumskunde*, Vol. III, p. 824, 858.

What I wrote in the Preface to the *Vasavadattā*, p. 50, is here corrected.

† Had Yas'ovarman not been living in A. D. 1143, his younger son, who was not king, would surely have named, in a formal instrument of grant, Jayavarman, successor to their father. See Colebrooke's Miscellaneous Essays, Vol. II., pp. 299, &c.

‡ Of Yas'ovarman's two sons, Lakshmīvarman and Jayavarman, we are not informed, in so many words, which was the elder. If Lakshmīvarman was so, his death may have taken place before his father's, and must have taken place during the nonage of his son Haris'chandra. On this view, Jayavarman, whom Haris'chandra followed, acted as regent on behalf of his nephew, but using all the formulas of a king holding in his own right. Otherwise, let it be that Jayavarman was senior, and died childless, after adopting Haris'chandra. Either opinion might seem to be assisted by Haris'chandra's language about himself. Premising his ancestors, while he passes over his father, he mentions his uncle, and adds, of himself: एतस्मात् पूज्यतमप्रभोः प्रसादाद्वाप्त-निजाधिपत्यः. In other words, he acknowledges that he had "obtained his supreme rank by favour of that most worshipful ruler." But, despite of the phrase 'supreme rank,' he does not by any means unequivocally pretend to kingship. Both at the end of the deed from which those words are taken, and in the body of it, he styles himself only mahākumāra, 'great prince:' and so he styles his father as well. Applied to the father, mahākumāra cannot imply that he was cæsar, but did not survive to enjoy actual possession of the throne. If eldest son of a king, he would, in any case, have been designated as yuvarāja. It is to the younger sons of a sovereign, and to their sons, it should appear, that the title of mahākumāra, is restricted.

Should this hypothesis be untenable, there may have been a third brother, Ajavarman, between Jayavarman and Lakshmīvarman. Then, Haris'chandra, if adopted by Jayavarman, must in time have become head of the state; or, if he did not, still the monarchy should have continued in the succession of Jayavarman, through adoption, or otherwise: and so we find room for Vindhavarman.

Again: did Jayavarman—miscalled Ajavarman—have a son in his old age, Vindhavarman, who stepped into the place of the disappointed Haris'chandra; provided the latter was not dead?

Offspring of Jayavarman we hear nothing of; but Ajavarman had a son Vindhavarman. Provisorily, at least, it is maintainable that Ajavarman, which name we nowhere find but in some indifferent verses, is a mistake of

VII. Subhaṭavarman, son of V.*

VIII. Arjuna, son of S. A. D. 1210—1215.

Devapāla, nominally a Rājā, if not really one, was reigning at Dhārā in A. D. 1353. His ancestors' names have not transpired.†

Vākpatirāja, mentioned in the following inscription, was cousin german to Bhoja of Dhārā. Their life-times most probably osculated. The former, who dwelt at Ujjayinī, appears as an independent potentate; and there is no cause for thinking that he was not so.‡

INSCRIPTION.

याः स्फूर्जत्कण्ठद्विघानलमिलद्भूमप्रभाः प्रोक्षसन्-
मूर्धाबद्धेशशाङ्गकोटिघटिता याः सैहिकेयोपमाः ।
याश्चञ्चद्विरिजाकपोललुलिताः कस्तूरिकाविभ्रमास्-
ताः श्रीकण्ठकठोरकण्ठरुचयः श्रेयांसि पुष्पान्तु वः ॥ १ ॥
यत् लक्ष्मीवदनेन्दुना न सुखितं यन् नाऽऽर्द्रितं वारिधेर-
वारा यन् न निजेन नाभिसरसीपद्मेन शान्तिं गतम् ।
यच्छेषाहिष्णुसहस्रमधुरश्चासैनं चाऽऽश्वासितं
तद् राधाविरहातुरं मुररिपोर्वैल्लव्युः पातु वः ॥ २ ॥

परमभट्टारकमहाराजाधिराजपरमेश्वरश्रीवैष्णवाजदेवपादानुध्या-
तपरमभट्टारकमहाराजाधिराजपरमेश्वरश्रीवैरिसिंहदेवपादानुध्या-
तपरमभट्टारकमहाराजाधिराजपरमेश्वरश्रीसीयकदेवपादानुध्याता-
परमभट्टारकमहाराजाधिराजपरमेश्वरश्रीमदमोघवर्षदेवापरभि-

ignorance, on the part of the poetaster, for Jayavarman, or else a liberty such as an unskilful practitioner might not scruple at, if in metrical distress : for the two names are hardly interchangeable. Yet Professor Lassen here encounters no difficulty.

See this Journal, for 1836, pp. 377 etc. ; and for 1838, pp. 736 etc. : also Colebrooke's Miscellaneous Essays, Vol. II., pp. 297 etc.

The above is in supersession of a note in the Journal of the American Oriental Society, Vol. VII., pp. 35—37. Since writing that note, I have been able to consult the plates containing Haris'chandra's grant, the date of which is A. V. 1236, or A. D. 1179.

* As I have remarked elsewhere, between Vindhyavarman and Subhaṭavarman a King "Amuṣhyāyana" is interposed by Mr. Wilkinson, who mistakes an epithet for a proper name. This and several other misinterpretations are copied, without correction, by Mr. A. K. Forbes, in his *Rās-mālā*, Vol. I., pp. 114, 203.

Amuṣhyāyana is the adjective of *amuṣhyāyana*, 'son of somebody,' an hidalgo, a eupatrid.

† See my paper on an inscription where he is spoken of, in this Journal, for 1859, pp. 1—8.

‡ Professor Lassen is of a different opinion. *Indische Alterthumskunde*, Vol. III., pp. 841, 842.

धानश्रीमद्वाक्पतिराजदेवपृथ्वीवल्लभश्रीवल्लभनरेन्द्रदेवः कुण्डलो श्रीन-
र्मदातटे गर्दभपानीयभोगे गर्दभपानीयसम्बन्धिनि* उत्तरस्यां दिशि
पिप्पिरिकानाम्ना वडारे समुपगतान् समस्तराजपुरुषान् ब्राह्मणोत्त-
रान् प्रतिवासिपट्टकिलजपदादींश्च बोधयति ।

अस्तु वः संविदितं यथा वडारोऽयमस्माभिराघाटाः पूर्वस्यां दिशि
अगारवाहला मर्यादा तथोत्तरस्यां दिशि चिखिल्लिकासत्कगता †या
समायता सा मर्यादा तथा पश्चिमदिशौ‡ गर्दभनदी मर्यादा तथा

* On the tablet the vowel is long. A couple of mistakes below, equally unimportant, have been corrected silently; and -देवत्तिर्य० has been exchanged for -देवतोर्थ०

† The ditch of Chikhilliká is qualified by a term which, in an unpublished inscription from Gwalior, stands, in the feminine, as *satká*, before *vāsaniká* and before *vīthi*. Was *satká* a mediaevalism for *sat*? The common Sanskrit of a thousand years ago was not a little singular.

Akshapanimiká, *paliká*, *uṇṭaka*, and *sāva* are met with in the same record. The second, now *palí*, or *parí*, is a large ladle. *Uṇṭaka* may have denoted a particular cess. *Sāva*, deprived of its final vowel, is one of the forms, still current, of a word meaning, among other things, a dry-grocer. It is usually supposed—but it is not clear why—to be a corruption of *sādhu*. Can it be that a proper name has herein become the appellation of a class? A trader named *Sādhu* is eulogized in the *Satyá-nārāyaṇakathá*, a book of universal prevalence in this part of India. I extract the thirty-first stanza of its second chapter:

अथाऽहं वर्णयिष्यामि गाथां साधूपचारिताम् ।

साधुर्यथा कृतार्थीभून् दृपस्याऽऽदेशतो वणिक् ॥

Every blind beggar is now known as *Súrdás*; and every one-eyed man, in these parts, as *Holkar*, from the monocular Maráthá chieftain of that name.

‡ A blunder for दिशि; and it is repeated a little further on. Several other, even grosser, errors, evincing that *Vákpatirāja's* conveyancer was but an indifferent clerk, will be noticed by the observant reader.

The fastidious respect for the laws of Pāṇini which is illustrated by the following couplet, taken from the *Saraswatī-kaṇṭhābharāṇa*, had no doubt become obsolete long before the tenth century. If oral tradition be trustworthy, the interlocutors in the stanza were a king and a poor Bráhmaṇ who was carrying home a huge fagot.

भूरिभारभराक्रान्तो बाधति स्क्व एष ते ।

न तथा बाधते स्क्वो यथा बाधति बाधते ॥

“Your shoulder must pain you, weighed down with so heavy a load.” “Not so much as Your Majesty's *bádhati* does.”

Bádhathe would have suited the critical pauper better. But he came into the world too soon to profit by the example of Sheridan when correcting the *obleege* of “the first gentleman in Europe.”

A couple of specimens of particularly vicious Sanskrit are subjoined as a novelty. They were taken down as dictated by an intelligent Pandit who thoroughly appreciated their badness. That they are strictly metrical is no argument of their being the composition of a clever wag; for to Hindus in general prosody seems to come by nature. And, again, their syntax could be obviously mended, here and there, without prejudice to longs and shorts. It is most probable that they are the sober effusions of aspiring ignorance.

दक्षिणस्यां दिशौ अपिशाचदेवीर्यमर्यादा एवं चतुराघाटोपल-
क्षिताभिरेकत्रिंशसाहस्रिकसंवत्सरेऽस्मिन् भाद्रपदशुक्लचतुर्दश्यां प-
वित्रकपर्वाणि श्रीमदुज्जयिनीसमावासितैः शिवतडागाभसि स्नात्वा
चराचरगुरुं भगवन्तं भवानीपतिमभ्यर्च्य संसारस्याऽसारतां दृष्ट्वा ।

वाताभ्रविभ्रममिदं वसुधाधिपत्यम्

आपातमात्रमधुरो विषयोपभोगः ।

प्राणास्तृणाग्रजलबिन्दुसमा नराणां

धर्मः सखा परमहो परलोक्याने ॥ ३ ॥

भ्रमत्संसारचक्राग्रधाराधारामिमां श्रियम् ।

प्राप्य ये न ददुस्तेषां पश्चात्तापः परं फलम् ॥ ४ ॥

इति जगतो विनश्चरं सकलमिदमाकलयोपरिलिखितवडारः स्व-
सीमाटणकाष्ठयूतिगोचरपर्यन्तः सदृक्षमालाकुलः* सहिरण्यभाग-
भोगः सोपरिकरः सर्वादायसमेतो†ऽहिच्छत्रविनिर्गताय धामद्र-
क्षिणप्रपन्नाय‡ ज्ञानविज्ञानसम्पन्नाय§ श्रीमद्वसन्ताचार्याय श्रीधनि-
कपण्डितसूनवे मातापित्रोरत्नमन्त्रं पुण्ययशोभिवृद्धयेऽदृष्टफलमङ्गी-

प्रातःकाले शिवं दृष्ट्वा निशीपापं विनश्यति ।

आजन्मकृतमध्याह्ने सायाह्ने सप्तजन्मनि ॥

मेरुकाञ्चनदत्तानां गवां कोटिशतैरपि ।

पञ्चकोटितुरङ्गाणां तत् फलं त्रिवर्द्धनम् ॥

“If one sees S'iva in the morning, the sins of the night are atoned; if at noon, the sins committed since one's birth; if in the evening, the sins accumulated during seven births. As of bestowing away gold in bulk as great as Meru, and billions of kine and fifty millions of horses, is the merit of beholding S'iva.”

आदौ देवकिदेवगर्भजननं गोपग्रहे वर्धनं

मायापूतनजीवितापहरणं गोवर्धनोद्धारणम् ।

कंसच्छेदनकौरवादिहननं कुन्तीसुतः पासनम्

एतद् भागवतं पुराणकथितं श्रीकृष्णलीलामृतम् ॥

“First, the god's birth from the womb of Devakī; his nurture in the house of the neatherd; his taking the life of the illusory Pūtana; his lifting up Govardhana; his killing Kansa; his slaying the Kauravas and others; his protection of the sons of Kuntī: this is, in essence, the *Bhāgavata*, the nectar of the sports of the blessed Kṛishṇa, as set forth in the Purāṇa.”

* The *visarga* has been supplied.

† Corrected from -समेतः हि०.

‡ I do not know the meaning of this epithet. It is more than likely that the Sanskrit is depraved.

§ An emendation of -सम्पन्नाय.

कृत्य चन्द्रार्कार्णवक्षितिसमकालं परया भक्त्या शासनेनोदकपूर्वकं प्रति-
पादितः* ।

इति मत्वा तन्निवासिजनपदैर्यथा † दीयमानभागभोगकरहिर-
ण्यादिकं सर्वमाज्ञाश्रवणविधेयैर्भूत्वा सर्वदाऽस्म समुपनेतव्यम् ।

सामान्यं चैतत् पुण्यफलं बुद्ध्याऽस्मद्वंशजैरन्यैरपि भाविभोक्तृभिर-
स्मत्प्रदत्तधर्मादायोऽयमनुमन्तव्यः पालनीयश्च ।

उक्तं च ।

बज्रभिर्वसुधा भुक्ता राजभिः सगरादिभिः ।

यस्य यस्य यदा भूमिस्तस्य तस्य तदा फलम् ॥ ५ ॥

यानीह दत्तानि पुरा नरेन्द्रैर्

दानानि धर्मार्थयशस्कराणि ।

निर्माल्यवान्तप्रतिमानि तानि

को नाम साधुः पुनराददीत ॥ ६ ॥

अस्मत्कुलक्रममुदारमुदाहरद्भिर्

अन्यैश्च दानमिदमभ्यनुमोदनीयम् ।

लक्ष्म्यान्तडित्सलिलबुद्बुदचञ्चलाया

दानं फलं परयशःपरिपालनं च ॥ ७ ॥

सर्वानेतान् भाविनः पार्थिवेन्द्रान्

भूयो भूयो याचते रामभद्रः ।

सामान्योऽयं धर्मसेतुर्नृपाणां

काले काले पालनीयो भवद्भिः ॥ ८ ॥

इति कमलदलाम्बुबिन्दुलोलां

श्रियमनुचिन्त्य मनुष्यजीवितं च ।

सकलमिदमुदाहृतं च बुद्ध्या

न हि पुरुषैः परकीर्तयो विलोप्याः ॥ ९ ॥

इति । सं १०३१ भाद्रपदशुदि १४ ।

खयमाज्ञादापकश्चाऽत्रश्रीकंहपैकः‡ ।

खहस्त्रोऽयं श्रीवाक्पतिराजदेवस्य ।

* In the original is प्रतिपादिता.

† I have inserted the म of दीयमान०.

‡ On the plate, instead of the *anuswāra* over the क in this name, there is ए formed into a conjunct with ह.

In the lower left-hand corner of the second plate is an engraving of Garuḍa holding a snake in his hand.

TRANSLATION.

1. May the deep hue of the hard throat of S'rīkaṇṭha—a hue as of the smoke associated with the fire of the poison of strepitant* snakes; resembling Sainhikeya, when in contact with the horns of the resplendent moon adorning S'iva's head; and exhibiting the beauty of musk, when lying *shadowed* on the tremulous cheeks of Girijā—conduce to your well-being.

2. May the person of the foe of Mura, pining because of severance from Rādhā, and unquiet,—which derived no pleasure from the moon of Lakshmī's countenance; which was unrefreshed by the waters of the sea, uncomfited by the lotos in the reservoir of his own navel, and uncheered by the sweet effusions from the thousand hoods of the serpent S'esha—protect you.

* * * * *

3. As of the rack is the *transient* wantoning of kingship. Sweet but till its disappearance, *on scrutiny*, is the fruition of worldly delights. Like a water-drop on the point of a spear of grass is the vital breath of men. Ah! virtue is one's only friend on the journey of the other world.

4. Of those who, having achieved prosperity,—of which the abode is the rim at the top of the wheel of the revolving world,—practise not liberality, the sole requital is remorse.†

* * * * *

5. By numerous kings, Sagara and others, the earth has been enjoyed. Whosoever, *for protection*, at any time has been the soil, his, meanwhile, *in participation*, has been the fruit of the merit *redounding from the original bestowment thereof*.‡

6. The grants—a source of merit, wealth, and distinction—once conferred, here *on earth*, by kings, rank with the reliques of sacrifices

* 'To thunder' is the only sense believed to be attached, in classical Sanskrit, to the verb *sphurj*.

† Colebrooke, as I have elsewhere remarked, from misreading two characters in the first verse of this couplet, errs in explaining it. See his *Miscellaneous Essays*, Vol. II., pp. 308, 309; and the *Journal of the American Oriental Society*, Vol. VII., p. 46.

‡ Just before this stanza, and serving to elucidate it, is the following sentence: "Moreover, knowing this recompence, merit, to be common, the coming occupants of our title, born in our line, or strangers, should admit and uphold this virtuous donation by us assigned."

Dharmādāya, 'virtuous donation,' is a curious neoterism for *dharma-dāna*.

and with vomitings. What right man, pray, would take them again ?*

7. By those who recite the traditionary munificence of our family, and by others, may this gift be approved. Donation, and preservation of the fame of others, *one's predecessors*, are the fruit of fortune, inconstant as lightning, or as the water-bubble.†

8. Again and again does Rámabhadra *thus* sue to all these *and* to future mighty kings : ‘ Universal to princes is this bridge of virtue, *safeguard*, *and* to be conserved, by you, in successive ages.’

9. When, therefore, men consider, that riches and human life are as uncertain as a bead of water on the petal of a lotos, and when they understand all this which has been propounded, of a truth it behoves them not to annul the repute of others.‡

Saugor, May 30th, 1861.

* For a relative note, see this Journal, for 1858, pp. 238 seqq.

† Misled by indistinct engraving, Colebrooke has made sad work of these lines. See his Miscellaneous Essays, Vol. II., pp. 311, 313. He really had before him, no question, the same reading as mine, with the sole exception of *valaya* for *salila*.

Colebrooke has : “ This donation ought to be approved by those who exemplify the hereditary liberality of our race, and by others. The flash of lightning from Lakshmi swoln with the rain drop, is gift ; and the fruit is preservation of another’s fame.” Taking उदाहरन् to signify ‘ exemplifying ’ is very natural for one off one’s guard. The verb being understood in one of its acceptations, the force of उदाहरन् is ‘ bringing as an example.’ ‘ To follow an example, is expressed thus : चैवस्याऽऽचरणं मैवोऽनुकरोति, or देवदत्तस्याऽऽचारं यज्ञदत्तो दधार. The idea of ‘ setting an example ’ is rarely worded, by the Hindus, otherwise than periphrastically. Yet here is an exception, in a couplet quoted in the *Kárya-prakás’a*, p. 150 :

पुंस्त्वादपि प्रविचलेद् यदि यद्यधोऽपि
यायाद् यदि प्रणयने न शृद्धानपि स्यात् ।
अभ्युदरेत् तदपि विश्वमितोदशैयं
केनापि दिक् प्रकटिता पुरुषोत्तमेन ॥

“ Though one even had to lose one’s manhood, or had to descend, or had to abase oneself by mendicancy, *while making the endeavour*, still one should *not refuse* to rescue the world. An example in point has been exhibited by a certain preeminent person, *i. e.*, *Vishnu*.”

‡ Here, once more, the admirable Colebrooke, though all but unrivalled on the score of accuracy, has gone astray, and at the cost of the measure, the *Pushpitá-grá*. See his Miscellaneous Essays, Vol. II., pp. 311 and 313, with two foot-notes ; and the Journal of the American Oriental Society, Vol. VII., p. 45, notes 47 and 48.

*A few notes on Antiquities near Jubbulpoor.—By Lieut.-Colonel
H. YULE. (Bengal Engineers.)*

These notes have little substance, but notes of this kind often chance to supply a missing link in researches, and therefore they may be worth recording. When about to travel to Jubbulpoor with the Governor-General's Camp in December 1860, I asked Col. Cunningham if he could tell me of any antiquities on our line of march. He mentioned that there was a temple at Teoree on the Nursingpoor road and desired me to obtain certain particulars about it.

At Jubbulpoor I could not learn anything distinct about the remains indicated by Col. Cunningham, but on my return from a visit to the gorge of the Nerbudda above Bheraghat called "the Marble Rocks," I went in search of them, accompanied by my friend Mr. A. B. Sampson. The village is called in the Revenue Survey maps Tewar—by the people Teór.* In looking for ruins our attention was drawn to a stony eminence, about half a mile west of the village, to which we at once made our way.

It was swarming with labourers engaged in excavating and cutting stone for the Nurbudda bridge of the G. I. P. Railway, and the first impression was that it was a natural quarry. This impression was dispelled as soon as we mounted from the foot of the knoll and entered the excavations. The stones were being taken from a site in which they had been built together, but for what purpose it was impossible to say. On the side of the excavation fifteen to eighteen courses were visible of large blocks of roughly squared sandstone, from 10 inches to 18 inches and even 2 feet in thickness, and many of them exceeding 3 and even 4 feet in length. The bottom of the excavation also remained paved with such blocks, all as closely set as the material allowed, but without mortar.

Further inspection showed amid the masonry a number of stones with architectural sculpture on them which must have belonged to some previous building. Some of the stones also had marks of having been cramped with iron. In some places between two courses of sandstone blocks was interposed a course of large slabs of micaceous shale, as if to improve the bond.

* It is between the 6th and 7th milestones from Jubbulpoor.

The height of the knoll was (I should judge) scarcely short of 60 feet,—its diameter, before it was enlarged by the ejection of rubbish from the late excavations, about 250. The excavations were carried in a gully nearly all round the centre of the knoll, at a height of 12 or 15 feet above the ground, and leaving a solid centre of nearly 100 feet in diameter, so that the section was something like the sketch Fig. 1. Every part of this excavation disclosed masonry such as I have described, so that the building must have had a diameter of something more than 100 feet, whatever it was.

This mound is called by the people Karanbel. They told us that there was formerly a temple on the top, the stones of which were removed by a certain Nieholson Sahib to build a bridge.

Whether this was the temple of which Col. Cunningham had heard, I cannot say. But evidently such a structure as these excavated remains indicate could scarcely have been the mere base of a Hindu temple. I do not know what it could have been except a Buddhist Tope. Mr. Preston the district Engineer of the G. I. P. Railway did not regard it as a *building* properly speaking at all, but as a pile of stones which had been gathered together for the purposes of building. This seems to me out of the question. The stones are *built* beyond doubt.

If I am right in my conjecture of its original purpose, some of these stones will have had a curious history.

They have first formed part of the primitive building, the sculptured remains of which have been built into this mass of masonry ;

They have then been piled into a Buddhist Dagoba ;

Next they have afforded material for a Hindoo temple ;

And, lastly, they are being quarried and hewn for a Railway bridge over that "ancient river" the Nerbudda.

What shall be their next destination, who shall guess ?

This place has evidently been the site of a great mass of buildings, probably of a great city.

There are several other mounds adjoining, which have been the sites of extensive buildings. On one of these to the S. of Karanbel are traceable the foundations of an extensive edifice by the excavations which have been made to get out the stone.

Another mound to the westward of Karanbel is for 300 yards (and I know not how much further) covered with fragments of building

FIG. I.

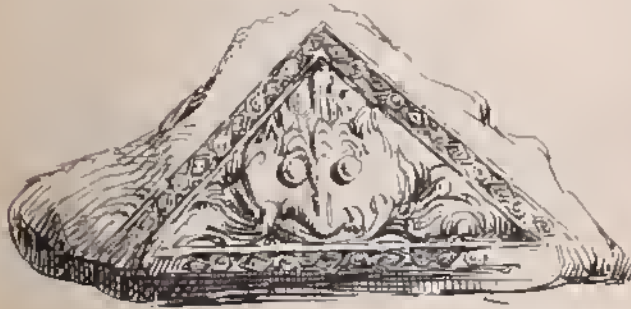
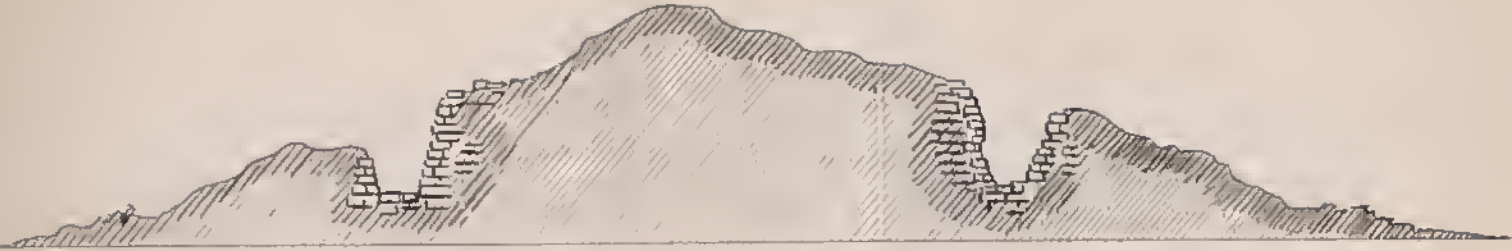


FIG. II

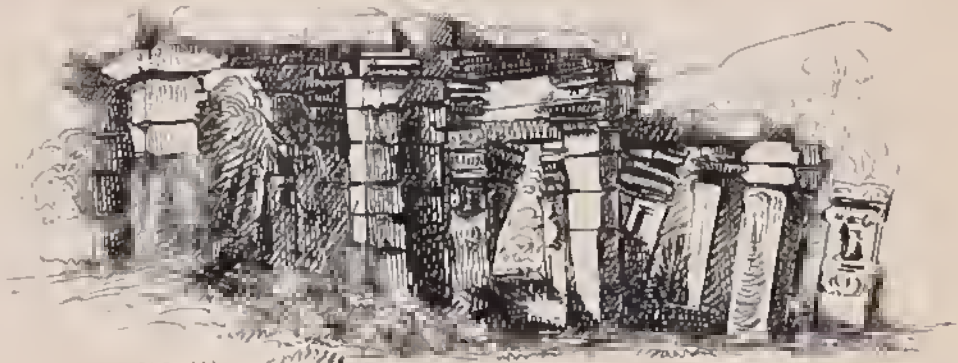


FIG. III

ANCIENT TEMPLE SUPPOSED JAIN

NEAR TEWAR, IDHULPOOR

stone, very many exhibiting the remains of architectural sculpture. Near the base of each of these mounds is the pit of a large and deep *baolee*, the stones of which have been removed.

Between Karanbel and the village of Tewar is a fine ancient well, 10 feet in diameter, built with squared and radiated blocks of sandstone, without mortar, and with layers at intervals of micaceous schist as noted above. Near this well are the remains of several buildings, perhaps *topes*, from which stones have been removed. On one block about 4 feet long I found the sculpture represented in fig. 2, presenting a modification of the grinning head which is found in so many ancient buildings of India, Burma and Java.

These remains, and the great mound in particular, are said by the people to have been used as quarries for the neighbourhood, including Jubbulpoor, for ages.

A Mussulman fakir whom I met at Muddun Mahal* told me some rather pointless legends about the Ranee Dhurgowtee to whom he ascribed both that edifice and Karanbel.†

The latter he said was a very lofty building at the top of which there was kept burning through the night a great caldron full of *binowla* (cotton seed) steeped in oil, so as to lighten all the country round. This and other indications of arrogance on the part of Queen Dhurgowtee involved her in war with the "Badshah," and a trai-

* A curious old Hindoo pavilion, built on the summit of two enormous granite boulders at the top of the hills over the ancient city of Gurha near Jubbulpoor.

† "In the time of Akbar—the celebrated Dhurgoutee, the queen of Gurha Mundula, whose reign extended over the Saugor and Nerbudda territories, and the greater part of Berar, was a daughter of the reigning Chundale prince of Malioba. He condescended to give his daughter only on condition that the Gond prince who demanded her should, to save his character, come with an army of 50,000 men to take her. He did so, and "nothing loth," Dhurgoutee departed to reign over a country where her name is now more revered than that of any other sovereign it has ever had. She was killed about 250 years ago, about 12 miles from Jubbulpoor, while gallantly leading on her troops in their third and last attempt to stem the torrent of Mahomedan invasion. Her tomb is still to be seen where she fell, in a narrow defile between two hills; and a pair of large rounded stones which stand near are according to popular belief her royal drums turned into stone, which in the dead of the night are still heard resounding through the woods and calling the spirits of her warriors from their thousand graves around her. The travellers who pass this solitary spot, respectfully place upon the tomb the prettiest speemen they can find of the crystals which abound in the neighbourhood; and with so much of kindly feeling had the history of Dhurgoutee inspired me, that I could not resist the temptation of adding one to the number, when I visited her tomb some sixteen years ago." *Sleeman's Rambles and Recollections* p. 245.

torous servant revealed to the Badshah the secret of the construction of Karanbel. It was poised by curious art on a globe of a few inches in diameter; and a small force properly applied served to bring it down in utter ruin.

This shows that the native imagination has been struck, as we were very much struck, by the entire ruin and obliteration of form—"the line of confusion and the stones of emptiness."

On the edge of the mound to the westward mentioned above, on the slope descending to a large ravine, are the remains of two small temples of very ancient appearance; they have been entirely composed of sandstone. The smaller has been a simple colonnaded roof with a portico round. The larger is of the same character but more complex, and I did not ascertain its exact plan.* This latter has never been completed. Some of the columns are complete and boldly carved, showing with great distinctness as one of their features a Greek urn, which more or less disguised appears often to enter into the members of ancient Indian columns. In others the capital only, or the capital with some additional portion of the decorated members of the pillar, rests on blocks of stone squared and accurately fitted, but which never have received their ornamental sculpture. This is an example of the ancient Indian practice of sculpturing ornament after the erection of the building.

Both appear to have been Jain. We found about them, partially buried, very fine carved images about half the size of life, representing the Buddha-like figure which appears to be commonly found in Jain temples. The hair and face are those of Buddha, and so is the attitude, except that the hands rest symmetrically on the lap with the palms up. There is a quatrefoil on the breast, and a chatta over the head. Figures of worshipping elephants and devotees frame the figure. On my description Lord Canning commissioned Major Erskine to have these sent to Calcutta. Where they were they would soon have been destroyed. One of them had been smashed quite recently, apparently in pure mischief.

About two miles from this place are the celebrated marble rocks of the Nerbudda, where the river has forced a narrow passage through the nearly vertical marble strata, deserting apparently a more ancient channel to the north. On a hill in the island formed by these is a

* See Fig. 3.

staircase ascending to a temple of Shiva under the name of Gouri Shunkur. The temple is paltry and modern, but it is surrounded by a circular detached colonnade looking inwards, which if not itself ancient has apparently been built up of very ancient remains. This colonnade contains a great number of female figures more or less broken and defaced, some young and plump, others emaciated by austerities. They are called the 64 Jognees.

At Bhera Ghat below we saw the body of one of the Gosains belonging to this establishment brought down for commission to the waters of the Nerbudda. He was just dead, and had almost the appearance of life. The head and neck were decked with yellow flowers. The body was carefully placed in the Buddha-like attitude of the images described above and tied up in a sheet, with a gourd of water, food, a pipe for smoking ganja, and a small wooden hoe.

About $1\frac{1}{2}$ mile further east, and above a perpendicular fall in the Nerbudda, were seen on the high bank shapeless remains of stone-buildings which might have been anything, having become mere overgrown mounds. In one a square chamber was discernible. Still further, near the village of Gopalpoor and not far from Lamhata Ghat, are several Hindoo temples of old character with low pyramidal roofs, but nothing very interesting in the architecture. A larger building, now abandoned, has apparently been erected after Mahomedan ideas. It is a square, with a very handsome ribbed dome of a beautiful elliptical form, quite different from the ordinary Mahomedan dome, in excellent stone work, and probably 20 or 25 feet in diameter, resting on walls not more than $2\frac{1}{2}$ feet thick, and as yet quite sound, though the peepul trees have taken root and will soon bring it to ruin. I apprehend it was Hindoo in spite of its form.

February 2nd, 1861.

Note on the Rain-Fall in the Basin of the River Mahanuddy and the Floods consequent thereupon.—By Captain J. C. HARRIS, Bengal Engineers.

COMMUNICATED BY COLONEL BAIRD SMITH.

From any good Map of India it is easy to trace a general boundary line of the Basin of the Mahanuddy and having done so I find (from weighment of thick paper—cut to the required form) that it encloses an area of exactly 50,000 square miles made up of parts as follows:—

	Square Miles.
Area of main Body of Basin	40,000
„ „ neck of Delta	3,750
„ „ Delta Proper	6,250
<hr/>	
„ „ Total area	50,000
<hr/>	

or again the area of the whole basin may be (roughly) divided into portions as below, the areas of which I shall have occasion to speak of separately, by and bye;

	Square Miles.
Area above the Delta	45,000
„ in „	5,000
<hr/>	
	50,000
<hr/>	

Accepting the above as the area of the Mahanuddy Basin, I purpose considering here, *first*, whether the basin has any peculiarity either of size, form, position, or otherwise, which is pre-eminently calculated to produce excessive flood volume in the Mahanuddy; *secondly*, whether theoretical calculations of flood volume, based on “area of basin rainfall,” &c., &c., are corroborative or otherwise, of the calculations based on “sectional area,” “slope of bed,” &c., &c., which have been previously made by me.

In respect of the first point offered for consideration, it appears above that the body of the basin has a mean diameter of 225 miles; that its centre is but 200 miles from the sea and its furthest limit little more than 300 miles from the same; so that the *size* of the basin is such, that but a very moderately wide-spreading

rain storm is required to ensure rain falling on every square inch of its area simultancously ; again, the *form* of the basin is that of an extremely round and compact body with a narrow neck and bell-shaped mouth ; than which form it is difficult to conceive one (short of a geometrically perfect one) more calculated to empty itself rapidly— and it appears lastly, that the *position* is one of very close proximity to the sea, the souree of rain clouds. With these pre-eminent qualifications for filling and rapidly emptying itself, engendered by form and position with its size being so limited as to leave no doubt but that a large rain storm may at once and the same time fall upon every square inch of the basin, with steep and densely wooded mountains eneircling it, and with steep rocky slopes covering its area, I think it must be allowed that the Mahanuddy Basin *is* pre-eminently calculated to produce what are actually met with, floods ranging extremely high, but of very brief duration.

I will dispose of the second point proposed above by offering the sub-joined questions for solution and going into the calculations necessary.

Question 1.—How many inches of rain must have fallen over the whole area of the Mahanuddy Basin above the Delta (the rain *in* the Delta was very insignifieant) to have produced the great flood of the 29th July, 1855 ?

Solution 1.—This extraordinary flood eommeneed to rise at Cuttaek at about 9 A. M. on the 27th July ; at which time the river gauges stood (as they had done for several days previously) as follows :—

Kajooree,	18 feet*
Mahanuddy,	13 „

and the flood subsided to these guage levels by the 2nd August. During this period of seven days the discharges of the two arms of the Mahanuddy were as below ; *vide* Report Part III. Cuttaek Rivers' Survey, page 25.

In the Mahanuddy,.....	Cubic feet	410,704,819,200
„ Kajooree,	„	351,067,824,000
		<hr/>
	„	761,772,643,200
		<hr/>

* Neglecting small decimals.

Now, if we suppose that but for the great rain storm which produced the extraordinary flood, the rivers would have continued to run during this seven-day period, at the level at which they had been for some days previously; they would have discharged per second (*vide* Table 16, Report Part II.) during this period—

The Mahanuddy,	Cubic feet	3,40,923
„ Kajooree,	„	2,94,340
		<hr/>
	„	6,35,263
		<hr/>

and in the seven days, cubic feet $6,35,263 \times 7 \times 24 \times 60 \times 60 = 384,207,062,400$ cubic feet.

Deducting from the whole discharge—

Or.....	Cubic feet	761,772,643,200
The above amount of	„	384,207,062,400
		<hr/>
We obtain.....	„	377,565,580,800
		<hr/>

as the volume of water thrown into the Mahanuddy by the rain storm. Distributing this amount over the whole area above Cuttack we

$$\text{obtain } \frac{377,565,580,800}{\frac{\text{Sq. Miles} \times \text{Feet}}{45,000 \times 5280 \times 5280}} = 0.3 \text{ feet or } 3.6 \text{ inches}$$

as the portion of the rainfall which found its way into the channel of the Mahanuddy; and if we suppose this to be $\frac{2}{3}$ th only of the total rainfall, that rainfall must have amounted to (inches $3.6 \times \frac{5}{2} =$) 9 inches.

Question 2.—What must have been the rainfall throughout the year 1856 in the Mahanuddy Basin above the Delta, to have produced the discharge which has been calculated to have taken place at Cuttack, as per subjoined extract from Table submitted with my Report Part II. *viz.* :—

**Theoretic discharge of the Cuttack Rivers throughout the year in 1856.*

Month.	Mahanuddy.	Kajooree.	REMARKS.
January,	17,581,881,600	11,338,099,200	These calculations were made for every day separately, of the year 1856. It is thought that the discharges for the flood season may be a trifle under-estimated if any thing; and those for the dry season over-estimated.
February,	13,721,097,600	9,739,440,000	
March,	9,490,953,600	8,427,369,600	
April,	4,705,257,600	6,026,400,000	
May,	8,538,998,400	8,055,936,000	
June,	88,370,006,400	73,856,448,000	
July,	506,251,814,400	436,002,220,800	
August,	676,590,844,800	622,331,164,800	
September,	345,237,120,000	359,677,929,600	
October,	220,090,780,800	226,476,172,800	
November,	50,347,699,200	31,868,640,000	
December,	25,211,606,400	19,227,001,600	
Total of each,...	1,966,144,060,800	1,803,026,822,400	

In the Mahanuddy, Cubic feet 1,966,144,060,800

„ Kajooree, „ 1,803,026,822,400

Giving the total annual discharge,... „ 3,769,170,883,200
or about $3\frac{3}{4}$ billions of cubic feet?

Solution.—Dividing this amount of “discharge through the rivers,”
Cubic feet.

by the “area drained,” we obtain $\frac{3,769,170,883,200}{45,000 \times 5280 \times 5280} = 3.004$ feet
Sq. miles. Feet. Feet.

or 36 inches; and supposing this amount as before to be $\frac{2}{5}$ th only of the “actual rainfall,” this latter will, it appears, have been ($36 \div \frac{2}{5} =$) 90 inches.

Theoretical calculations then, based on “area of basin” and “rainfall,” appear to corroborate the previous calculations, based on sectional area and slope of bed; in direct proportion to the value of the subjoined probabilities.

1st. The probability of an average of nine inches of rain having fallen over the whole area of the Mahanuddy Basin in a single storm, towards the end of July, 1855; at which time the River was tolerably full of water.

[* There are some clerical errors in these calculations.—EDS.]

2nd. The probability of the average annual rainfall in the Mahanuddy Basin above the Delta, having in 1856 been 90 inches.

It would be extremely satisfactory in this place to be able to point to a register of rainfall for the year 1856, kept at Sumbulpore, as furnishing observed facts which might be substituted for the above probabilities: but in the absence of the former, I must endeavour to measure the latter.

The probability of the nine inches of rainfall may be rated very high I think, for, on the 9th September, 1856, a fall of nine and a half inches was observed at Pooree by Dr. Pringle, the Civil Surgeon of that place; to say nothing of heavier rainfalls having been oftentimes observed in other districts similarly situated.

Again, the rainfall during 1856 having been observed in places in the Delta, Pooree and Cuttack, to have been respectively $63\frac{1}{4}$ and $67\frac{1}{2}$ inches, I conceive that its having been as much as 90 inches on the average, in the tract *above* the Delta, is not at all improbable; indeed highly the reverse.

Moreover, supposing that I have estimated too highly the annual rainfall above the Delta, (at 90 inches) I am inclined to think that the error would be found to lie, not in my calculation in No. 2 but in a possible under-statement of one of the factors; *viz.*: the ratio of the "amount discharged by the River" to the whole "rainfall of the tract:" for though that ratio may in ordinary cases be fairly represented by $\frac{2}{3}$ ths, yet in a rocky basin like that of the Mahanuddy, a larger proportion *may* possibly find its way into the channel of outlet, and if this be assumed, the amount presented as the solution of Question No. 2 will necessarily be proportionally diminished.

The general accuracy of the calculations based on "sectional area," "slope of bed," &c., &c., formerly submitted by me, having been confirmed in a most remarkable manner by evidence altogether independent of these calculations (*vide* Report Part III. Cuttack Rivers' Survey, page 23), and again being further, as I consider them to be, corroborated by those based on "area of basin" and "rainfall," which are given above, I think the subjoined general deductions from all the various calculations made, may be regarded as the great facts of the Mahanuddy which call for recognition when any scheme, with which that river is at all connected, may fall under consideration.

1st. The area of the Mahanuddy basin is about 50,000 square miles.

2nd. The maximum average rainfall in the basin has not been ascertained, but it is probably as much as 90 inches, possibly more.

3rd. The maximum annual discharge of the river is about four billions cubic feet.

4th. The maximum flood discharge between the Passes and the Delta, is 21,00,000 cubic feet per second.

5th. The maximum flood discharge at the head of the Delta is (not less, possibly somewhat more than) 1,800,000 cubic feet per second.

6th. The Delta channels (more or less embanked as they are) are able to pass off only one-half of the volume of a maximum flood; or 900,000 cubic feet per second.

7th. The occurrence of a maximum, or "*very* extraordinary flood is dependent on the contingency of an average fall of 9" of rain taking place over the whole area of the basin in a single storm, whilst the river is well filled by previous heavy rain. Such an occurrence may be looked for possibly once in twenty years.

8th. The effect of such "*very* extraordinary" flood is to carry away from 25 to 30 linear miles of the embankments of the Delta.

9th. "Extraordinary" floods, the necessary effect of which is the destruction of ten linear miles or so only, of embankments may possibly recur five times as often as the above.

Of the remedy which can be applied, I have written so fully in my Report, Part III. Cuttack Rivers' Survey, that I need not here say any thing further regarding it, saving that I continue strong in the belief that the Mahanuddy can be rendered powerless for evil, by the construction of the proposed dam at Kundlepore, and the excavation of the proposed cutting at Daltollah, through the Mahanuddy's eastern water-shed; at a *money* outlay of about a quarter of a million sterling, and after an outlay of *time* which I shall be better able than at present to estimate, when I receive from the Government of Bengal the information regarding the formation of the Vergel River in Ceylon, as a branch of the Mahawelligunga River, regarding which I have requested that certain particulars might be obtained from the Ceylon Government.

*Notes on the River Yang-tse-Kiang from Hankow to Ping-shan.**By Lieut.-Col. SAREL, B.A., F.R.G.S.**Hong Kong, 11th August, 1861.*

SIR,—I have taken the liberty to forward a copy of some notes taken during a journey of 1800 miles up the Yang-tse-Kiang, in the hope that they may prove of interest to your Society; I have also forwarded a copy to the North China Branch Society.

I have forwarded an application to His Excellency the Viceroy of India for his sanction to the formation of an expedition to penetrate into China through India and Thibet; I do not think the route through Birmah to be feasible at present, in consequence of the West of the Province of Yunnan being overrun by rebels.

I have the honor to be,

Sir,

Your most obedient Servant,

H. A. SAREL, CAPT. and BT. LT.-COL., 17th Lancers.

To the Secretary Bengal Asiatic Society, Calcutta.

An expedition consisting of the undermentioned Officers left Shanghai on the 11th February, 1861. They were allowed by Admiral Sir James Hope to accompany the Naval expedition under his command as far as Yochow, from which place they proceeded in native boats. The original intention was to penetrate through the Province of Sz'chuan to Lassa, and thence to cross the Himalaya mountains to the plains of India. As will be seen, the unsettled state of the country in the West rendered the obtaining carriage an impossibility and prevented the carrying out of this plan.

The party was composed as follows :—

Lieut.-Col. SAREL, 17th Lancers.

Captain BLAKISTON, R. A.

Doctor BARTON.

Rev. S. SCHERESCHEWSKY, American Mission.

The notes commence from the time of leaving Hankow, the river below that port having been surveyed and reported on.

From Yochow to Pingshan the river has been carefully surveyed by Captain Blakiston.



105°

110°

30°

30°

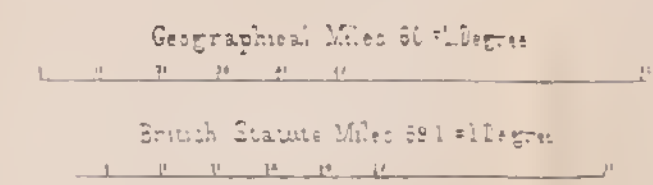
DISTRICT

MOUNTAINOUS DISTRICT

MAOUTSE OR INDEPENDENT TRIBES

HILL COUNTRY

SKETCH MAP
of the
YANG TZE KIANG.
from
HANKOW TO PINGSHAN.



Signes/ H. A. Sirel Lunt Coll

105°

110°



Specimens of mineralogy, ferns and insects have been collected and forwarded to England.

The country above Hankow is flat, large tracts on both banks being flooded in March, but a low range of hills crosses the river shortly above the junction of the Han with the Yang-tse; about ten miles above Hankow, on the left bank, are some low grassy hills admirably suited for the encampment of a large body of troops; the situation is dry and airy, with the river close at hand and a creek running into the country. Ten miles higher up two hills called Ta-kin-shan or the great, and Siau-kin-shan or the little golden hill, are passed on the left bank, the little hill being the largest; near these are hills on both banks, after which the country near the river again becomes flat, though low ranges are visible at some distance inland; the river here averages a mile in width; numbers of trading junks were seen on their way between Honan and Hankow viâ the Tung-ting lake; most of the boats come from Hiang-tang and Sun-chu (foo) in Hounan and some few from Chungking in Sz'ehuan; some boats roughly constructed, their top sides being of deal planks unplanned and unvarnished, furnished with matting sails, bring coals from Pow-king (foo), a town in the interior of Hounan; when these boats reach Hankow, after discharging their cargo, they are broken up and sold for the wood.

Numerous timber rafts are also brought down the lake to the Yang-tse; they are made in divisions with huts built on them for their conductors; a division can be sold at any place without interfering with the rest of the raft, and the rafts being connected, like a train of boats, can turn the sharp bends of the small rivers they have to descend to the lake.

At the village of Lo-ji-kow, the rebels had left their traces; a small temple and some of the buildings were in ruins; these fanatical savages destroy everything they come across, their only idea being utterly to obliterate all traces of the Tartar government and to begin "*de novo*;" a few years will leave them nothing to govern even if they succeed in destroying the Tartar dynasty, which I much doubt; already many of them are said to be heartily tired of rebellion, and would doubtless return to their allegiance if they thought they could do so with safety to themselves, but rebels can expect no

mercy from a Chinese government, nor have their actions been such as to entitle them to it.

Between Hankow and the entrance to the Tung-ting lake only two places, deserving the names of towns, are passed ; the first being King-kow on the right, and the second Singti on the left bank ; at the latter there is some trade and a custom-house, where all the junks coming down the river pay toll.

Some miles before reaching the entrance to the lake, the river narrows to about half a mile between two bluffs of red sandstone ; soon after passing them a large rock about five feet above water in March, shows in mid-stream ; this is covered when the river rises, and would be dangerous until sufficiently under water for ships to pass over it.

The river between Hankow and Yochow is straight for the first and last parts of its course ; part in the middle makes a loop twenty-eight miles round, the neck being only about a mile across ; a canal cut here would be a great assistance to the navigation ; the ground being perfectly flat and only a few feet above the river, there would be no difficulty in making one, and the current of the river would be sufficient to keep it clear ; in July we passed through a narrow cut made by the river, finding from four to ten feet of water, with a strong current across this neck ; the reach below the lake entrance is long and straight running about N. E. and S. W. On the way from the river to Yochow at the head of the lake, a great number of sheep and goats with a few ponies were seen grazing on a low grassy flat, covered in floods ; these were the only sheep seen on the river for a distance of 1,800 miles.

From Hankow, Sir James Hope had taken a junk in tow for our expedition, the *Coromandel* and *Bouncer* being the only ships brought on farther than that town ; from Yochow the ships returned and we proceeded alone.

On preparing to start we were informed that a canal called the "Taiping" canal, connecting the Tung-ting lake with the Yang-tse, would shorten our route by five days ; we determined, however, on keeping to the river, in order to obtain all possible information about it.

The stream flowing from the Tung-ting lake to the Yang-tse-kiang is called "Kin-ho-kow" or the mouth of the golden river, by which

name the Yang-tse was formerly known as low down as this junction, and is now higher up. Its position at the junction is by Naval Dead reckoning from Hankow,

Lat. 29° 27' 2" N.

Long. 112° 50' 05" E.

Yochow, standing at the entrance to the lake, is in the direct road of the trading boats coming from the province of Hounan; there does not appear to be much business done, almost all the trade being at Hankow; the country towards the north-west is flat, being, in March, only a few feet above the water, and covered when the river is in flood; the town is in a dilapidated condition; it stands on high clay cliffs well above the water.

A short distance above the junction, the banks are often eighteen or twenty feet high in the bends of the river; opposite these banks are generally extensive flats of sand running far out into the stream; deep water is always found near the steep banks.

The course of the river for some distance after leaving the lake, is very tortuous, a whole day's travelling frequently not taking the junk more than five or six miles in a direct line from the last anchorage.

The country as far as could be seen from the river, is a flat, growing wheat, beans and carrots; in some extensive swamps on the banks, osiers were growing; about thirty miles above the lake it becomes undulating, ranges of hills appearing in the West; on the left bank a high and broad embankment protects the low country from the river floods; before reaching Shishow, a small walled town on the right bank, the river runs near some hills varying from 700 to 1,500 feet in height; three of these hills are excellent marks; one we named the "Camel's hump" another the "Ass' ears" and the third "Boulder hill" from a large round mass of rock standing by itself on the side of a hill; all these marks are visible at a great distance; higher up the river, close to the town of Shishow, two hills, called the little and great temple hills, are distinguishable by the white buildings on them, for many miles.

At Shishow, low hills of a hard red stone run down to the water's edge; from the top of the "Little Temple" hill, close to the river, a good view is obtained of the town and country to the S. E. and of a lake near the town in which are small islands with houses and

gardens ; the town is surrounded by a weak looking wall, and is protected on two sides by the river and lake ; the others are commanded by low hills near the walls ; within the town are gardens extending over nearly half the space enclosed by the walls, and this is the case with every town on the Upper Yang-tse ; nearly all are built at the foot of a slope, the extent of ground enclosed having reference to what a town may one day become rather than to the available number of inhabitants to defend such a length of wall.

At Hohia, a large village on the left bank, the river makes a sharp bend, and narrows from an average width of a thousand yards to about seven hundred ; through the narrows, the stream rushes with great force against the left bank, which, when we saw it, had been deeply cut into ; a fine wall, of very hard limestone, was in course of construction to protect the embankment ; in crossing the narrows, the lead gave, close to the village, fourteen fathoms, in mid-stream sixteen, and eight and a half at twenty yards from the right bank ; above the village, the embankment recedes from the river, until, at the distance of nine or ten miles up, it is fully a mile from it ; the land between this and the river is about fifteen feet higher than on its landward side ; it appears to have been built at a time when the river ran in a different bed from its present one ; as the river has retired from the embankment to its present channel, the intervening flat has become gradually raised by a succession of deposits of mud brought down by the annual floods, while the country beyond, has remained at its original level ; a road is carried along the top of the embankment, which is about twenty-five yards wide.

The carriage of this part of the country is a light cart, generally with two, sometimes with four solid wheels ; buffaloes are used for draught, and small ponies for the saddle ; the large wheeled barrow, the same as that used in the North and in other parts of China, is also found here.

About 170 miles above the junction of the Tung-ting lake with the Yang-tse, is the town of Shahsz' ; it is the first place of any importance above Yochow, being the port of Kinchow (foo), a large city a mile inland ; Shahsz' is built on the embankment on the river's left along which it runs for about two miles or rather more ; on the whole of its river face, and in every creek, junks, some of a large size, were moored as closely as they could be stowed ; a mandarin

gave the population as 600,000, but probably more than doubled it; a Chinese will give any answer to avoid the trouble of thinking, and information picked up casually cannot be relied on.

Many west country boats come down the river as far as Shahsz', bringing sugar, pepper, salt, opium, tobacco and hemp, taking back cotton and some of the goods imported from Canton and brought thus far by the Tung-ting lake and the Taiping canal which joins the river six or seven miles above and to which, when the river is high, there is a short cut opposite Shahsz'.

Kinchow (foo) was said, by the above mentioned mandarin, to contain 10,000 Tartars, and too many Chinese to be counted; travellers by land reach it in five days from Hankow; 2,000 men from the Tartar garrison were said to have been sent to Hwangchow, a town below Hankow, which the rebels were reported to have taken.

Between Yochow and Shahsz' the soundings in the channel were never under four fathoms, and varied from that depth to seventeen, near the banks being seldom under three; a continuous line of soundings could never be procured, our course being along shore, so that we were only able to get a cast in crossing from side to side.

Six or seven miles above Shahsz,' the canal before mentioned as connecting the lake and river, is passed; it is called "Hu-du-kow" or "Taiping," more commonly the latter: boats come from Yochow to the Yang-tse by it in five days, but make no use of it on the downward voyage, there being little or no stream in it; in fair weather boats go from Shahsz' to the entrance to the lake near Yochow in a little over three days; the Taiping canal at its junction with the river is about a hundred yards broad.

To the West from Kiangkow, a town on the left bank and about two miles inland, the country becomes undulating and the river banks shingly; just below this town a large fleet, of upwards of two hundred junks, was met conveying soldiers down to oppose the rebels.

Limestone is quarried and burnt and red bricks and tiles are made near the village of Yungchi; from this point the country totally changes its character; from an almost dead level it becomes undulating, hilly and very shortly mountainous; to the South West and North West of the town of Chikiang is a range of high mountains called "Shih-urh-pei" or the hills of seven gates; peach trees were

in blossom on the side of those nearest the river, while the ground between them and the water was green with wheat and willows; in the distance they appeared well wooded, but there was probably nothing but underwood, no timber having been seen brought down to the river since quitting the lake.

The town of Chikiang stands on the right bank; a battlemented wall runs round three sides of it, that on the river side with a large portion of the suburbs having been laid in ruins by an unusual rise of the river in 1860. The scenery in this part of the river is very fine and the change most refreshing after the flat country below Yangchi.

Itu (hien) the next town reached is also walled; it stands on the right bank at the junction of the river Chinkiang with the Yang-tse; a range of hills runs to the East, while to the West mountains rise to a considerable height; the sand flats in the bed of the river are not so numerous as lower down; the banks become clayey and gravelly, while in some places rocks of conglomerate stand out from the shore; soon after leaving Itu, the course is between vertical cliffs of conglomerate, and the river narrows to 490 yards from an average of eight or nine hundred; reed and rubbish left on bushes and in crevices of the rocks, show the rise of the river during the floods to be occasionally sixty or seventy feet above its level in the end of March; last year, it was unusually high; its rise in June is probably from forty to fifty feet higher than in the cold months; this will not appear so much when it is considered that the river is here only fifty yards more than a quarter of a mile in width, and at Hankow where it is fully a mile, the rise in June was ascertained to be twenty-seven feet, the river being even then rising.

The hills below Ichang are immense masses of conglomerate, not in continued ranges, but standing sometimes singly, sometimes in groups of two or three, and of all sorts of shapes and sizes; some are flat topped, others run up into sharp peaks, some are cultivated while others are too precipitous to hold soil, and on these a few stunted, thorny bushes grow; in some are natural caves used as houses and temples; the bases of some are overhung by the tops, and under these, if a stream is at hand, the inhabitants construct huts, merely by building a wall with a doorway, from the ground to the rock overhead; from the highest peaks nothing could be seen towards

the South, South West and West, but confused masses of hills ; the valleys are thinly inhabited and the people we saw looked poor and sickly ; they seemed alarmed at our appearance, some taking to flight ; those living near the river suffered severely from the flood of last year, many head of the few cattle they possessed having been destroyed ; this year they are said (apparently truly) to be suffering from want of food ; streams of clear water run through the valley, near which the bamboo is extensively cultivated ; peaches, pears, cherries, peas and beans were in blossom and violets were growing in profusion.

The boats of the lower Yang-tse ascend no higher than Ichang, and we had here to engage a boat fit for the ascent of the rapids ; we anchored for some days off the "Tien Chan" pagoda, a mile below Ichang ; the occupation of the men here is principally fishing, the field work being, for the most part, performed by women ; sturgeon (called by the natives yellow fish) are said to be found in this part of the river ; porpoises are in great numbers from near the sea until a short distance below the rapids, when they disappear.

The town of Ichang (foo) stands close to the river on the left bank ; its position, as ascertained by Captain Blakiston, is —

Lat. $30^{\circ} 41' 5''$ N.

Long. $111^{\circ} 3' 0''$ E.

It is distant from Shanghai 950 geographical or about 1,100 statute miles, from Hankow it is 366 geographical or about 420 statute miles ; steam vessels would find no more difficulty between Yochow and Ichang than between Hankow and Yochow ; the most easy time to ascend would be when the river is low, as after its rise, the whole country below Shi-show is so flooded that the banks are not visible, and some difficulty might be found in keeping to the channel.

Most of the trading junks from Sz'ehuan go no further down the river than Ichang, though many go to Shabsz' and some few to Hankow ; this would be a very advantageous port for trading with the West of China, the difficulties of the navigation above being such as few owners would allow their vessels to risk, at any rate until something more is known of the rapids, and boats of a different construction to any at present in use on the Chinese waters have been built ; an immense number of junks were moored along shore when we were at Ichang, and a crowd of them at anchor under the walls on a bank ; these latter had on board a number of braves

who had been collected to be sent in different direction against the rebels.

To the East and South East the country is hilly, to the North mountainous; should this town ever become a trading port, excellent situations for houses will be found opposite the town on some low hills, and both above and below the town itself on the same side of the river is ample room for building, if it should be thought necessary to have places of business near the native merchants; the town side is not so much raised above the river as that opposite. A mile below the town and at the town itself the river is 940 yards wide in May and June; in the month of March we never found less than three fathoms and a half in any part of the channel between Shahsz' and Ichang; the river begins to rise about the beginning of April and rises until June; it remains at about the same level until the end of September and is at its lowest in the month of December when the water loses its usual red mud colour and becomes clear; it rose last year about twenty feet above its usual level. Coal is plentiful at no great distance up the river, but does not appear to be of a very good quality; it is small and dull looking, and is made into bricks as in the north, before being used as fuel; still higher up the river there is a district from which both coal and coke (which is made there) could be brought to Ichang by country boats in eight days; this latter coal seems to be of a superior quality.

On leaving Ichang our course was for about three miles, rather to the East of North, when it turned abruptly to the N. W.; from travelling on a wide stream flowing evenly through a slightly hilly country, we suddenly entered a gorge varying in width from 150 to 200 yards: the current increasing to 5 and 6 miles an hour with many strong eddies telling of rocks below the surface; our lead line of 25 fathoms found no bottom except close to the sides; the cliffs rise perpendicularly from the water's edge, in some places overhanging the river, to a height of from 300 to 500 feet; cultivation is extensively carried on in these hills wherever there is a sufficiently level space for soil to rest; wheat, beans, peas and different sorts of fruit trees were in blossom high up on the hill sides.

Tracking the boats in this part of the river is excessively severe work from the broken nature of the ground; the banks are strewn with masses of rock, and men have to be constantly clearing the

line ; above Ichang the boats do not use the sculls in use lower down the river ; in their stead each boat has from 10 to 20 oars, and, to assist the helm, a long oar is worked over the bow by 5 or 6 men ; the swirls of the eurrent would twist a boat's head round in an instant if the men were not ready with this oar to force it in the right direction ; the traeking ropes are made of plaited strips of bamboo, and are very light and strong ; the sails of the Houpeh boats are the same as those used lower down the river, but the boats have one mast only ; the West country boats have light square sails of cotton, with a yard and boom of bamboo, on which they roll up when not set ; they are not used on a wind and have not the cross bamboos usual with Chinese sails ; they are generally hoisted on shears.

A very hard limestone is quarried in these gorges close to the water's edge ; holes are cut in the stone and wedges of soft wood driven in, which, being wetted, swell and split the stone along the line in which they are placed.

About 12 miles above Ichang at the village of Shantow-pien, the river begins to be obstructed by rapids, that of Patung (sze) being the first met with ; when the river is low, many rocks are here above water ; in the strong part of the rapid, nearly 100 men on the line drew the boat up by inches ; accidents sometimes occur from the towing line parting ; the boats are fended off the rocks by a simple but effective plan ; a stout rope is made fast on each bow, and a spar laid along each gunwale ready for use, but on ordinary occasions the bamboos, used for poling in shallow water, are made use of ; when the boat nears a rock, the pole is projected to meet it, and, at the same time two or three turns of one of the ropes made fast to the bow are taken round it, when the pole strikes the rock, the strain is taken by the rope, which tightening gradually, protects the boat from any shock ; these spars can be projected from any part of the boat.

In the gorges of "Lu-kan" and "Mi-tan" the cliffs on both sides, rise perpendicularly from the water's edge to a height of nearly 1,000 feet ; they appear to have been originally one hill, split in two by some convulsion of nature ; the same marks and strata can be seen on both sides of the river at similar heights ; in some places the hills are covered with brown scrub or grass, at a distance resembling

heather; roads are carried across the mountain to the villages in the interior, and are sufficiently good for baggage animals.

The first town reached above Ichang is Kwei (chow) called Koue on Arrowsmith's map; it is a small walled place on the left bank containing about 100 houses, and the suburbs about 30; near the town a good road runs along the river bank, crossing the ravines on well constructed stone bridges.

Two miles above Kwei, coal is worked in galleries driven into the hill sides; this coal does not appear of good quality; it is brought to the surface in small, dull looking lumps; a number of people are employed in breaking it to powder, mixing it with water and moulding it into bricks for fuel; boats carry it to Ichang in about six hours.

At the rapid of Yeh (tan) 3 miles above Kwei, the water, in the first week in April, falls about 4 feet in 70 yards, but breaks only near the left bank.

The town of Wushan (hien) is approached by a long gorge of the same name; about half way through it are two creeks, one on each side of the river, marking the boundary between Houpeh and Sz'chuan; that on right bank is called "Pei-shih," that on the left "Shah-mo-chang;" at Wushan the poppy is cultivated; on the hills about the town, peaches, apricots, walnuts, the castor oil plant, hawthorn, honey suckle, and many wild flowers grow; a tree called "Tung-shu" is extensively cultivated in this part of the Yang-tse valley; from the nut, called Tung-tse, an oil used for varnish is expressed; each nut contains three or more kernels in shape and taste like a small Brazil nut, but very poisonous.

Above Wushan the hills recede slightly from the river, as far as a gorge most appropriately named "Fung-siang" or the wind box; it averages no more than 80 yards in width; the stream is strong, but not rapid; the cliffs rise vertically from the water's edge to a great height; at its upper end the hills again recede from the river, and close to a small stream on the left bank stands Quaichow (foo).

Quaichow (foo) is distant from Shanghae 1,028 geographical or nearly 1,200 statute miles; it is ~~414~~ geographical miles from Hankow and 78 above Ichang; there appeared no signs of trade in the town and few boats were lying near it.

Between Ichang and Quaichow, the navigation would be difficult

and dangerous ; when the river is high, small powerful steamers of light draught might ascend the rapids, but the safest plan would possibly be to tow them up ; of these rapids there are eight, though some are called so merely from the water running rapidly over a shallow near one shore, while near the other the stream is deep and still, running perhaps 7 miles an hour ; the largest country boats ascending are about 120 feet long by 15 broad, drawing, when loaded, under three feet ; they come down without difficulty merely by keeping in mid stream, the channel being apparently free from obstructions, and should the commerce of the Upper Yang-tse present sufficient advantages to compensate for the risk attending the navigation of this part of the river, steamers will doubtless be taken up and down in safety ; it is difficult for a military officer to give an opinion on such a subject, but the obstacles appear to me by no means insuperable ; at a short distance from the shore the water is deep, and the object of having vessels of light draught is to enable them to come close to the side, and to prevent the current from taking so much hold of them ; any number of hands are always procurable at the rapids, men living there whose business it is to assist boats on their way up, and among whom good pilots would certainly be found ; it would not be easy to anchor in all places on account of the rocky nature of the bottom and the depth of water, but many sandy bays are to be found where a vessel would lie snugly.

The road from Quaichow to Ching-tu was reported impracticable for baggage animals ; the regular road strikes across from Wan, a town a short distance up the River. The Authorities at Quaichow had heard of the existence of a Treaty between England and China, but had never seen a copy ; the Prefect was supplied with one by us.

Mexican dollars had been readily taken on the river as far as Ichang at 1,000 cash each ; at Quaichow, having no more dollars, Sycee silver was exchanged at 1,720 cash per tael, but the Sz'chuen, Hankow and Shanghae weights differ in the following proportions :—

100 Sz'chuan taels = 101.6 Shanghae taels.

100 " " = 102.48 Hankow "

Wan was said to be 360 li or about 110 miles above Quaichow ; in this part of the country, a day's march, whatever its actual distance, is called 100 li, and the li may therefore be taken as a

measure of time rather than of distance; in this instance we were rather over three days in reaching Wan, but the distance is under 60 miles.

Between Quaichow and Wan the river is no where less than 150 yards in breadth; there are some rapids but none so strong as those in the gorges below Quaichow; there are also rocks and reefs, but plenty of water in the channel; the hills recede much from the river and are not so high as those lower down; the poppy is cultivated, the opium being collected during April and May; the seed-pods of the Sz'ehuen poppy are quite as large and in many places larger than any I have seen in India; the specimens of opium brought down have been pronounced good, and the quantity produced in the province is so great, that it may well interfere with the foreign market.

Shortly before reaching Wan are some flats of sand and shingle on which gold is washed for, but the quantity produced is small, and none but those who can find no other occupation are employed in the work.

The town of Wan (hien) stands on the left bank; it is a small walled place; the shops are well supplied, and the inhabitants well off; coal, sulphur, ginger, sugar-cane, spices, and blue cotton prints were exposed for sale; the hills about the town are well watered and produce, besides the poppy, tobacco, peas, beans, wheat and barley; rice and cotton follow later in the season; the Tungshu tree is also much cultivated.

Numbers of soldiers were on their way up the river towards the West, and we found here a Tartar General to whom the Viceroy of Houpeh had given us letters, he was civil and attentive; all along our route we had heard that Sz'ehuen was in an unsettled state, and the General confirmed the report; he had come to Wan to make dispositions of troops, and having done this, was hastening from the rebel proximity. He reported the insurgents to be in possession of many towns between Wan and Chingtu, and the land route to be impassable on that account. He said the people had been so plundered themselves, that they had taken to robbery as a means of existence, and that it would be impossible to obtain carriage, as no one would be induced to venture into the disturbed districts. The Prefect, whom we afterwards visited, told the same story and recommended

our going by water to Chung-king, which we were obliged to do ; he had copies of the Treaty, which he called that of Prince Kung ; it was not seen posted anywhere.

About six miles above Wan, the ranges of hills become less rugged, the river being about half a mile wide ; farther on, gold is washed for on the shingly flats ; the river is bordered by many precipitous rocks, but they do not rise from the water's edge.

At the village of Hulin we found some native Roman Catholics ; they appeared delighted to see that foreigners were travelling about the country without even disguising their dress and with no attempt at concealment ; they complained that the authorities treated them badly, and that not long since they had raised a mob on them, who had burnt and plundered their chapel ; our arrival was made the occasion of a general holiday ; we were invited to a feast, and salutes and crackers fired in our honour.

Before reaching the town of Chung-show the river is tortuous, varying in breadth from 200 yards to three quarters of a mile ; in the narrow part the stream is strong, but in the channel is nowhere broken into rapids ; about 25 miles above Chung are many rocks in the river, some of which, in the middle of April, are about five feet above water, others just visible, and probably others hidden ; later in the season, these would all be covered, and the navigation would be difficult without a good pilot ; men who know the river well are to be found in all the towns ; the crags by the river side and the hills would afford marks by which a pilot would know his situation.

Above Wan with wheat, barley, and peas, the poppy and tobacco were every where seen ; at an island named from the day on which we passed it, "St. George's" island, the island itself and the whole surrounding country to the tops of the highest hills, were covered with poppy, and from this place to Chung-king, a distance of about 76 miles, with the exception of a few patches of wheat and tobacco near the villages, nothing but poppy was grown as far as could be seen on both sides of the river ; the crop is over by the end of May, and is immediately followed by sugar-cane, indian-corn, and cotton ; in the poppy districts rice was growing only near the villages.

From the entrance to the gorges above Ichang, the scenery is very grand ; here the appearance of the country is very fine though not so imposing as below Quaichow ; the villages and their inhabitants

were, when we saw them, very superior to those lower down the river, though they would present the same wretched appearance after a visit from the rebels; the dress of the people is the same, but they look better off and the farm houses and others are better built; they stand among clumps of bambus and fruit trees, each detached house having its own garden surrounded by a fence; there is a greater appearance of comfort here than in any part of China I have seen, but the universal reservoirs of liquid manure forbid a close inspection.

At the town of Fu (chow) on the right bank, the river Kiang-tan-ho falls in; it is said by the boatmen to be navigable for some distance above its mouth, and to be one of the routes by which traffic is carried on between Canton and the West of Sz'chuan; redoubts of masonry have been built on four high peaks near its mouth.

Below the town of Chang-show (hien) on the left bank, a small clear river joins the Yang-tse; near its mouth are many rocks, reefs, and shoals, but deep water is found near the right bank.

In all the districts above Chang-show the country people have banded themselves together against the rebels; the rebels in the West all go by the name of "Tu-feh" or local robbers, and are in no way connected with the "Taipings" of Nankin; they are both called "Chang-mao" or long hairs, but the Tufeh cut off the queue which the Taipings retain in case of falling into the hands of the mandarins.

A narrow gorge leads round a bend of the river to Limin, a walled town on the left bank separated only from Chung-king by the river Hoehow or Hokiang; along the whole front of both these towns and in the Hoehow river, numbers of both large and small junks were either at anchor or moving about; there was every sign of a great amount of business being carried on.

Chung-king (foo) is most admirably situated for a trading port, being at the mouth of the Hoehow coming from the North of Sz'chuan; about 120 miles farther up the Yang-tze the river Fusung falls in also from the North; eighty miles above this the Min (ho), coming from the North, joins at Süchow, the river being connected with Ching-tu (foo), the capital of the province, by a canal. The Hoehow is navigable for large junks as far up as the town of Shün-king, and probably higher when the river rises. Articles of mer-

chandise such as silk, wax, and hemp come principally from the districts near Kiading on the Min, from which place they are shipped ; these districts are now in the hands of the rebels, Kiading being their head quarters, so that trade with that side of the country is at a stand still ; the great objection to Chung-king as a port open to foreigners is the state of the river between it and Ichang ; above Quaichow the navigation is comparatively easy, but eighty miles of dangerous ground would have to be passed above Ichang. From Quaichow to Ping-shan properly constructed river steamers could easily ascend, but as no trade is at any time carried on above Süchow there would be little inducement to go beyond that town. Chung-king is the depôt for the whole commerce of the West, and is the largest and most flourishing city in the West, being of greater extent and population than the capital of the province ; none of the buildings have the tumble down appearance so common in many Chinese towns ; a stone wall, said to have eighteen gates, surrounds it ; it is built close to the river ; opposite the town on the right bank is an extensive shoal of shingle, but good anchorage would be found near the walls and in the Hochow ; Captain Blakiston's observations place the "Taiping-mun," one of the water gates, in—

Lat. 29° 33' 8" N.

Long. 107° 5' 0" E.

Population. It contains, according to the statement of some French missionaries resident here, a population of 200,000, of whom between 2,000 and 3,000 are Christians, and 500 families Musulmans ; in Chingtú there are said to be 1,000 Musulman families.

The Toutai of Chungking was not inclined to be civil, and the French missionaries warned us that the soldiers intended to murder us ; a very sharp letter was sent to the Toutai in which he was warned that the responsibility would rest with him if any Chinese lost their lives, which they would most assuredly do if they attempted to molest us ; after this he became very civil and we were received at his Yamun with all honour ; the soldiers had to be shown that they could not insult every one with impunity, but we were fortunately not obliged to use our fire arms.

Besides the three rivers already alluded to by which merchandise is brought to the Yang-tse, several small ones come in from the

province of Kweichow, but of these I am unable to give any information.

The following statistics of the trade of Chungking are from the information of a Chinese merchant.

EXPORTS.

Raw silk, ..	...	...	...per catty,	2.44 Taels.
White insect wax, ...	...	...	... "	0.3.1 "
Do. before the time of the rebels,	...	...	... "	0.2.8 "
Bees' wax (scarce), ...	...	...	... "	0.2.5 "
Hemp (for grass cloth),	...	...	... "	0.0.9 "
Medicinal drugs, price unknown.				
Hung-quai (safflower) for dying, price unknown.				
Rhubarb (bad), ...	...	...	... "	0.1.3 "
Sieh (tin or spelter),...	...	...	... "	0.2.8 "
Lead (from Yunnan),	...	...	... "	0.1.0 "
Salt, ...	...	...	... "	0.0.3 "
Sugar, ...	...	...	... "	0.0.5 "
Tobacco,...	...	...	... "	0.0.7 "

Copper is brought from Yunnan and iron from the district of Lan-shwan-hein 300 li to the S.E.

Coal (best quality) not much exported,	...per picul,	300 Cash.
Silver, ...	...per tael,	1,500 "
Gold, ...	... "	16.0.0 Taels.
Rice (said to be little exported),...	...per picul,	2.5.0 "

The above were given as wholesale prices.

The freight on silks, drugs, &c. from Chung-

king to Ichang is ...	...	...	... "	1.0.0 "
On coarser articles, "	0.3.0 "

The duty on silk was believed by the informant

to be, "	3.0.0 "
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Silk embroidery is worked in the town and a coarse silk manufactured.

The following list is of specimens purchased in Chung-king, and their wholesale prices, as given by a Native writer attached to the party, are set down opposite each.

Opium, ...	...	...per tael,	350 Cash.
Insect wax, ...	...	...per catty,	400 "
Sieh (tin or spelter),...	...	... "	390 "

Copper, ...	...	...	...per catty,	240	Cash.
Rhubarb,	...	...	...per picul,	8.0.0	Taels.
Chuan-pè-ma (a drug),	...	...	... „	75.0.0	„
Hung-quà (safflower),	...	...	... „	32.0.0	„

Coal and limestone are brought in considerable quantities along the great Eastern road, and across the river by a ferry to the Tai-ping gate; this is carried up the hills by a flight of stone steps six feet wide; the road for some miles inland, is paved.

IMPORTS.

Tea (best quality) from Honnan,	...	...	...per picul,	50.0.0	„
Do. (No. 2),	...	...	... „	16.0.0	„
Do. (inferior) grown in Sz'chuan,	...	...	... „	3.3.4	„

Freight from Ichang to Chung-king is less than from Chung-king to Ichang.

Foreign goods are now brought from Canton viâ the Tung-ting lake; before Suchow in Kiangsu was taken by the rebels, the route was from that town viâ the Yang-tse.

The following is a list of foreign cloth goods imported from Canton; the figures prefixed to the colours signify the proportion in which each is in demand, 1,000 being the maximum; the Chinese names are in brackets.

(Piki) Long Ells.

1,000 Scarlet,	...	...	...per piece,	11.0.0	Taels.
150 Dark-blue,	...	...	... „	9.8.0	„
150 Light-blue,	...	...	... „	8.8.0	„
100 Black,	...	...	... „	8.0.0	„
80 Green,	...	...	... „	10.5.0	„
50 Foreign-blue,	...	...	... „	10.0.0	„

(Yu-mau) Dutch Camlet.

100 Dark-blue,	...	...	... „	30.0.0	„
80 Sky-blue,	...	...	... „	28.0.0	„
10 Black,	...	...	... „	19.0.0	„
10 Scarlet,	...	...	... „	27.0.0	„
10 Foreign-blue,	...	...	... „	25.0.0	„
5 Green,	...	...	... „	22.0.0	„
5 Pale-yellow,	...	...	... „	25.0.0	„

(Yu-sho) English Camlet.

100 Dark-blue,	...	...	...	28.0.0 Tael.
80 Sky-blue,	...	...	...	18.7.2 "
10 Black,	...	...	...	17.4.0 "
10 Scarlet,	...	...	...	25.3.0 "
10 Foreign-blue,	...	...	...	23.3.0 "
5 Green,	...	...	...	19.8.0 "
5 Pale-yellow,	...	...	...	23.5.0 "

(Ki-tow) Fine Cloth.

100 Dark-blue,	...	...	...	10.3.0 "
60 Sky-blue,	...	...	...	10.2.0 "
10 Scarlet,	...	...	...	10.2.0 "
10 Foreign-blue,	...	...	...	10.2.0 "
5 Brown,	...	...	...	10.1.0 "
5 Black,	...	...	...	10.1.0 "

(Ma-kien) Common Cloth.

100 Dark-blue,	...	...	...	10.4.0 "
50 Sky-blue,	...	...	...	10.3.0 "
10 Scarlet,	...	...	...	10.3.0 "
10 Foreign-blue,	10.3.0 "
5 Brown,	10.2.0 "
5 Black,	10.2.0 "

(I-cho-ni) Broadcloth.

20 Black alone used,	20.0.0 "
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(Yu-ling) Lastings.

20 Dark-blue,	16.0.0 "
100 Sky-blue,	17.0.0 "
100 Foreign-blue,	17.0.0 "
20 Black,	15.0.0 "

Cotton goods packed in boxes of 20 pieces.

White prints,	...	...	...	3.7.0 "
Coloured do.,	...	...	...	4.8.0 "
Checks, ...	...	...	...	4.4.0 "
White calico (1st quality),	...	...	...	3.6.0 "
Do. do. (2nd quality),	...	...	...	3.4.0 "
Do. do. (unbleached),	...	...	...	3.3.0 "
Printed chintz,	...	...	...	2.5.0 "

Sundries.

Brass buttons, ...	...	... per gross, 3.2.0 Taels.
Telescopes, ...	...	... each about 10.0.0 „
Pistols, ...	...	... „ 4.0.0 „

No carriage was procurable at Chung-king, the country between it and Chingtu being full of rebels, so that we had to proceed by water to Süchow.

The first town reached above Chung-king is Kiang-tse (hien) ; the current runs about four miles an hour and rapids occur ; the river, from passing through such a hilly country as the province of Sz'chuan, is liable to sudden freshes, every thunderstorm in the hills pouring a large body of water into it ; it falls nearly as rapidly as it rises ; flats of shingle are washed for gold as below Chung-king ; coke is used for fuel, and coal and limestone are dug near the village of Yochi.

Above Chung-king, none of the boats use sails and dispense with the steering oar used for assisting the helm in the rapids ; boats with salt and merchandise were continually passing down, and bales of cotton being carried up on rafts formed of bamboos ; a number of oil boats were also passing down.

Above Chungking the poppy crop was over, and sugar cane and indian corn were being planted in its stead, at the same time that rice was taking the place of wheat and barley ; buffaloes (many of a pink colour) are the only animals used in farming operations.

At the town of Hokiang (hien) a small river called Zhun-huei, rising in Kweichow, falls into the Yang-tse ; in this district the safflower (Hungqua), is extensively cultivated, and a species of hemp is grown both here and at Chungking.

The river Fusung joins the Yang-tse at Lu (chow) (called Che-li-leou on some maps) ; this river passes about 30 miles to the East of Chingtu, and, at the time we passed, the country through which it flows was held by the rebels ; it is one of the roads to Chingtu ; at Lu, a great number of spars, apparently of fir, were stacked.

At the town of Nachi (hien) the appearance of the farm houses and villages changes for the worse ; the people look poor forming a great contrast to those a short distance below ; the district was visited last year by the rebels, which may account for the wretched appearance of the inhabitants ; the river Yanlin here falls in from the South. Below Nachi several reefs and shoals occur in the river,

but the channel appears clear and there is plenty of water ; the breadth of the stream opposite Nachi is 660 yards.

The river An-lui-kilow flowing from the South falls into Yang-tse at the town of Kiang-an (hien) ; the country is hilly, the hills well watered and extensively cultivated with rice ; the people were in a great state of alarm about the rebels ; on the hills many new redoubts had been constructed, and men were on outpost duty on the river in boats.

From the town of Nanki (hien) hills can be seen in the interior rising to a great height ; a short distance above Li-chuan-pa, a small town, coal is worked.

Süchow is a large town on the left of the Yang-tse and Min-kiang which here falls in from the North ; it is at all seasons navigable for large junks as far as Kiading, a town about 100 miles from its mouth, and, when the water is high, up to Chingtu, a canal having been cut from the river to the town ; when the water is low the communication above Kiading is kept up by means of small boats.

The navigation of the Yang-tse from Chung-king to Süchow would not be difficult for steam vessels ; there are rocks in places, but seldom under eight fathoms water in the channel, and near the sides rarely under three ; the average rate of the stream in this part of the river is perhaps five and a half miles an hour.

Süchow (foo) is a large town at which in quiet times a large amount of trade is probably carried on ; a great number of junks were waiting here in the hope that the banks of the Min river might be deserted by the rebels so as to enable them to proceed to Chingtu or Kiading, which place was held by them : they were said to have detached parties much nearer Süchow, and to be robbing and murdering every one they could lay hands on ; headless bodies, with their hands tied behind their backs, floating down the Min at all hours, plainly showed that there was some truth in the stories we had heard on our way up ; the gates of the town were closed, and there were no means of ingress or egress but by a rope over the walls ; a strong garrison of braves from Sz'chuan and Yunnan were quartered outside the city, and fighting among themselves ; an engagement took place between them during our stay, and the Yunnan party had to be removed by the authorities ; on our return they attacked our boats with stones, but the sight of the rifles, &c., put them to

flight. The position of Süchow according to Captain Blakiston is in—

Lat. 28° 46' 6'' N.

Long. 105° 7' 0'' E.

The products of the neighbouring country are yellow and white silk, insect wax, bee's wax, tobacco, honey, coal (220 Cash per picul), a small quantity of iron, which is worked close to the town and green tea. Sycee was worth 1,630 cash per tael.

No one could be found to accompany us through the rebel districts to Chingtu, and we had therefore to ascend the river to Ping-shan in the hope of being able to get round them; the only traffic above Süchow is in coal, which is brought down in boats; above Ping-shan no trade at all goes forward.

The country above Süchow is very mountainous and the river decreases in width; its average is about 250 yards; twenty miles above the town it runs through a district in which coal is extensively worked, being dug out in galleries high up on the hill sides, and sent down in baskets sliding on stout ropes of bamboo, a full basket drawing up an empty one; these galleries are often at such a height that a half way stage is necessary; this coal district extends for 17 or 18 miles along both sides of the river; the coal appeared to be of a superior quality to any seen below; it was brought out in large and bright lumps; in every place where coal was seen the rock was sandstone, and where washed by water was jet black and polished; boats would carry coal from this district to Hankow in twenty days, to Ichang in ten. Many men here have brown hair; this is not seen lower down the river.

Above Süchow the geographical name of the Yang-tse is the "Kin-cha-kiang" or river of gold; it is called by the boatmen merely the Yunnan river; nothing could be learnt about it above Ping-shan, but there are said to be falls at a distance of 100 li above; our boatmen and Captain refused to go further, and would not proceed beyond Süchow until we promised to take them no farther than Ping-shan.

Ping-shan, a small walled town on the left bank, is the farthest point to which we ascended; no Europeans, as far as is known, have ever reached this point before us; the walls have lately been put in a state of repair, and strengthened on the landward side by traverses

constructed on the banquette, as the hills close to them completely command them and expose them to an enfilading fire; the Prefect was here at first very civil, and promised all assistance, but said the rebels were in the neighbourhood and that we had better leave the place; the townspeople closed the gates and fired on us from the walls, but no bullets came anywhere near us, and finding we remained quiet they discontinued; that same night the rebels attacked the town; the walls were illuminated, and every man of the attacking party carried a lantern; the fighting did not appear to be very severe, being confined to distant firing and shouting.

Except for purposes of exploration there is nothing to bring a steam-vessel beyond Süchow; the river is navigable as far as Ping-shan, with the exception of the eighty miles between Ichang and Quaihow, and even that may be practicable; above Ping-shan I can give no information about the river, but from the tops of the highest hills near the town, nothing can be seen but high hills towards the West.

From this point we were compelled to turn back, no one being willing, for any amount of pay, to venture into a district overrun by rebels; no boats ascend the river beyond Ping-shan so that we were unable to visit the country of the Maoutse or independent tribes, which is near Ping-shan to the West; a chief of these tribes with some of his followers paid us a visit and were very friendly; we exchanged presents of knives and wine; they are a totally different looking race to the Chinese, their faces being open and honest, which the Chinese faces certainly are not; some had the head clean shaved, others let their hair grow, and one only had a queue; the weather was warm and their dress consisted only of a coarse white cotton jacket, drawers and grass sandals; their turbans were of blue cotton twisted into a knot above the forehead; they called themselves "Huh-I" or "I-jin" black barbarians or foreigners, and repeatedly said they were not civilised men; they were very curious and inspected everything in the cabins narrowly, but were perfectly well behaved; the chief spoke a little Chinese but none of his followers could make themselves understood; we were considered by the people to be in some way connected with these people, and were called by them "White Maoutse;" none of the Maoutse could read or write; they possess horses and cattle in their own country; they said their only crop was indian corn; the chief said if we came to his country

there would be no difficulty about carriage, but we should have a mountainous country to cross before reaching it, and there was no possibility of procuring carriage at Ping-shan; he said that travellers would be plundered by the tribes unless under the protection of a chief; it was impossible to make out the limits of their country, but its western boundary cannot be far from the frontiers of Burmah and Assam.

The country round Ping-shan is hilly and fertile; silk is produced in considerable quantities; indian corn, rice, sugar cane, and turmeric are cultivated on the hills, and the cactus grows to a large size; water snakes and eels caught in the rice fields are eaten by the boatmen and villagers.

The boundary of Yunnan is passed just below Ping-shan, though we could not clearly ascertain where; the country on the South bank of the river opposite the town, was said by the Prefect to be in that province.

On both sides of the river the whole way from Yochow and even from Hankow to Ping-shan, the country is destitute of cattle with the exception of a few sheep and goats at Yochow, and goats in a few places; buffaloes and ponies were seen at times, but their number is small, nor does the country appear thickly populated; should an expedition, hostile or otherwise, ever ascend the river, the whole of their supplies would have to be carried with them; a few fowls, eggs, fish and a considerable amount of flour, salt and vegetables would be procurable; the towns would accommodate a large number of men, but few places are fit for encamping, the ground near the towns being covered with grave mounds; the hills above Hankow have been before alluded to; the people generally burn charcoal, except in the coal districts; fire wood is grubbed up about the country and brought in boats to the towns; there would be difficulty in obtaining it in large quantities.

The people are, wherever we met them, a quiet inoffensive race, but as the rebels increase in numbers they find it necessary to combine for their own safety, the government giving them no aid; in fact wherever the imperialist troops are in the field against the insurgents, the people are worse off than when left to protect themselves, being plundered by both parties; in the districts above Chang (show) hien they are keeping the rebels off and have outposts in the river, lookout stations on the highest hills, and redoubts in

the most defensible situations; no artillery larger than a jingall is used in this hilly country, and, it is only necessary to construct the redoubts so that they may be safe from escalade. If the Chinese government had the least energy, the rebels would have no chance to establish themselves in a country where the popular feeling is so strong in favour of law and order, but should the present state of affairs continue much longer, the feeling of the population will probably undergo a change; finding the government powerless to protect them, they will lose their respect for it, and the habit of carrying arms will make them less likely than formerly to submit to the exactions of the authorities; being by nature industrious and peaceable they are the people of all others likely to make good and loyal subjects to a government strong enough to ensure them peace and quietness; many of the rebels have become so either from necessity or compulsion, and would gladly embrace an opportunity of returning to a quiet life, and among them would doubtless be found men who, with officers in whom they could trust, would make first-rate soldiers.

The rebels in the West have no connexion with the Tai-pings, but have sprung from bands of robbers, doubtless encouraged by the weakness or want of energy of the government; the provinces of Sz'ehuan and Yunnan have always been in an unsettled state, being infested, like England in the olden time, by numerous bands of robbers; about two years ago, four of their leaders by name "Lan-tashun," "Li-ehwan-tata," "Chang-u-mats," and "Mou-san-chow" collected larger numbers of men than usual, and uniting their forces, have since, that time, set the government at defiance; at the present time they occupy a large portion of the province of Sz'ehuan, and are said to have burnt the suburbs of the capital Ching-tu (foo), and to be besieging the city; these bands first became formidable in the 9th year of the reign of the present Emperor, "Heën-Fung;" on the authority of a Mandarin who commanded our Chinese escort, they are now occupying the following towns in Sz'ehuan; between Wan (hien) and Chingtu:—Ping-ehi, Shè-kung, Chung-kiang. and Shünkung; between Chungking and Chingtu:—Ho (chow), Ting-yuen, Mien (chow), Nan-ching, and Si-ehung; between Lu (chow) and Chingtu:—Niu-fu-tu, King-yen, and Wè-yuen; between Süchow, and Chingtu:—Kiading, Kien-wè, Yow-ku-tu, Kioh-kih, Manien-chang, and Utung-kiow; the sons of a Moolvee at Chung-king gave the following as the names of places occupied by them in Sz'ehuan;

Mé (chow), Sintu, Mien (chow), Kin-shu (hien), Pun-shan (hien), Kien (chow), Kwan (hien), Ho (chow), Ting-yuen, and Suè-ling (hien); several names in the two lists corroborate each statement; from a Chinese map in the possession of the Prefect of Ping-shan, many places to the West of any of the above named either had been or were at the time in the hands of the rebels; after getting all they can out of one town, they often leave it and move to another.

Part of the Mussulman population of Yunnan is also in insurrection under the leadership of a Hadji by name "Ma Yussu;" his headquarters are at Ta-lif (foo) in the West of the province, and on the high road leading from the Burmese frontier to Yunnan, the capital of the province, and to Chingtu (foo), the capital of Sz'chuan.

China, to the South and West, may be said to be out of the hands of the government; though the mandarins still govern some towns and districts, they are ready to take to flight on the first attack of the rebels; the military commandant of Ping-shan was reported to have done so with his garrison, as soon as the town was attacked, and considered to have acted quite properly; as far as the safety of the town was concerned, he did, no doubt, the best thing possible, for the rebels would in all probability have been admitted by some of the soldiers.

Trade is, in the West, almost at a standstill, and it would seem of little use to open ports up the river for trade with that part of the country, until the rebels have been put down; Ichang is the only place at present where trade might be carried on with advantage, and the prospect of it might assist in settling the western provinces; the rebels there are not the same fanatical savages that the Taipings are; they do not destroy for the sake of destroying only, though in attacking a town they will burn buildings that interfere with their operations; many of these men would undoubtedly be glad of a chance to escape from their present life, and the opening of trade with the foreigners would give them an opportunity of doing so.

A body of the Taipings under a leader called "Shih-ta-kai" is said to be in the province of Kweichow, and this seems to be the most westerly point to which they have penetrated; on our way down the river we found a large imperialist camp at Yochow, from which the rebels were said to be 180 li distant; they were also reported to be 30 li from King-kow, a town on the right bank a short distance

above Hankow, but until the floods subside, they cannot move much about the country in the vicinity of the river.

The mandarins, as far as we could see, threw no obstacles in the way of our expedition : excepting at Chung-king, we were everywhere most civilly received ; the authorities were curious to know what we were really about, and the mandarins and soldiers sent with us, though ostensibly a guard of honour, were more probably for the purpose of reporting on our proceedings, and it is probably well known, long before this, at Peking that the river has been surveyed and soundings taken as far as Ping-shan ; I attribute our failure to penetrate into Thibet to no hostility on the part of the authorities, but to the impossibility of obtaining people to accompany us through a country where they had a very good chance of having their throats cut ; the Viceroy of Sz'chuan is the governor of Thibet, and is said to be well affected towards foreigners ; he is a brother of the newly made minister for foreign affairs at Peking, and resides at Chingtu.

Some time back there was some talk of attempting a route into western China by Burmah ; the Yang-tse seems to me to be the preferable route in every way ; it is most likely navigable for country boats a long way above Ping-shan, and the conveyance of goods by land across such a hilly country as Yunnan would be difficult and expensive.

As we descended we found the river very much risen since we passed up ; in the gorges below Quaichow the rapids had almost disappeared ; two bad places occurred below Shan-tow-pien, but no others ; the stream ran, except in these places, six and seven miles an hour.

Below Shi-show the river banks were much flooded, and it would be difficult, when the river is high, for ships to keep in the channel, there being nothing to mark the bank ; looking towards the Tungting lake there was a clear horizon, the view being broken only by trees and half submerged villages standing out of the water.

I regret being unable to add more to the very slight knowledge possessed of the interior and west of China ; whenever the rebels are put down, and not till then, a great amount of trade ought to be carried on with the west, and our knowledge of this most interesting country will increase ; under a good government the Chinese have the makings of as fine a nation as any under the Sun, but, as far at least as the West is concerned, we must for the present rest satisfied with the little that is known of them.

Register of Thermometer.

DATE.	SUN-RISE.	8 A.M.	NOON.	8 P.M.	REMARKS.
March 17	53	53	53.5	53.5	Cloudy with rain.
" 18	50	54	...	55.5	Foggy and sultry.
" 19	49.5	56	64	59	Heavy dew, fine.
" 20	57	57	57	54	Cloudy with rain.
" 21	48.5	52	58	52.5	Cloudy.
" 22	47	51	...	52.5	Cloudy and clear.
" 23	48.5	56	63	57	Cloudy.
" 24	54	58	65	62.5	Cloudy.
" 25	59.5	59	58	50	Overcast, rain.
" 26	...	46	50.5	48.5	Thick with rain.
" 27	46	47.5	53	54	Overcast.
" 28	50	54	66	59	Clouded over.
" 29	54.5	55.5	57.5	58.5	Cloudy with rain.
" 30	47	48.5	53	52	Cloudy with rain.
" 31	49.5	51	57	55.5	Clouded over.
April 1	55	58.5	68	65	Clear and cloudy.
" 2	47	53.5	67	58.5	Misty and cloudy.
" 3	60	64	...	62.5	Cloudy.
" 4	60	62.5	69.5	63	Clouded over.
" 5	58.5	...	61	62	Overcast and rain.
" 6	59	58	...	59.5	Cloudy with rain.
" 7	58	60.5	68	60	Cloudy with rain.
" 8	56	63.5	70	68	Cloudy.
" 9	59	...	71.5	74	Cloudy.
" 10	64	63.5	65	66	Cloudy with rain.
" 11	64	65	70.5	69	Clouded over.
" 12	...	65.5	64.5	63.5	Cloudy with showers.
" 13	...	62.5	62	58.5	Cloudy with rain.
" 14	56	59.5	67.5	...	Clear and cloudy.
" 15	57.5	62.5	71.5	61.5	Cloudy and clear.
" 16	56	64	71	68	Cloudy.
" 17	60	63	71	65.5	Foggy and hazy.
" 18	62.5	66.5	71.5	66	Hazy and thunder clouds.
" 19	62	66	76	70	Cloudy and hazy.
" 20	65	70	77.5	76	Overcast and hazy.
" 21	71	73	79	68.5	Cloudy with rain.
" 22	66	68	72	68	Cloudy, heavy rain.
" 23	65	67	74.5	73	Foggy and clear.
" 24	64	68	82	75	Clear.
" 25	66.5	72	86.5	78.5	Clear.
" 26	71.5	76	88	87.5	Cloudy and clear.
" 27	76	83	88.5	71	Cloudy with rain.
" 28	70	71	80	74	Rain and clear.
" 29	68	71	73.5	67.5	Rain and overcast.
" 30	66	68	...	73.5	Cloudy and clear.
May 1	67	69	80.5	...	Clear and hazy.
" 2	68.5	73.5	81	76	Clear.
" 3	69	77	92.5	78.5	Clear, oppressive.
" 4	73.5	79	88.5	81	Clear, oppressive.
" 5	74.5	80.5	90	84	Cloudy, raining very oppressive, lightning to S. working to W. and N.W.
" 6	77.5	79	85	80	Cloudy.
" 7	74	77.5	84.5	73.5	Cloudy, thunder-storm.
" 8	74	72	67.5	67.5	Cloudy, heavy rain.
" 9	...	69	77.5	71	Rain, Cloudy.
" 10	68.5	68.5	69.5	67	Overcast, rain.

Register of Thermometer—(Continued.)

DATE.	SUN-RISE.	8 A.M.	NOON.	8 P.M.	REMARKS.
May 11	68	73	79	76	Cloudy with fresh wind from N. to E. with heavy rain and thunder at night.
" 12	70	63.5	65	64	Steady and heavy rain.
" 13	65	69	74	68	Clouded over.
" 14	63	64	67	67	Thick and cloudy.
" 15	63	64.5	...	67	Rain and cloudy.
" 16	65.5	68.5	77.5	70	Overcast, cloudy.
" 17	70	73	82.5	73	Cloudy.
" 18	69	...	84	80	Cloudy and hazy.
" 19	73	...	...	82.5	Light clouds.
" 20	73.5	74	78	68.5	Cloudy and showery.
" 21	69.5	76	78	76	Cloudy.
" 22	70	72.5	79.5	78	Cloudy.
" 23	74	80	86.5	83.5	Cloudy.
" 24	78.5	81	90	71.5	Cloudy with rain.
" 25	...	71	79	74.5	Rain and cloudy.
" 26	70.5	78	84.5	76	Overcast, strong rain.
" 27	72	74	77.5	70	Overcast, strong rain.
" 28	71	76.5	84.5	77.5	Clouded over.
" 29	...	71	81.5	77	Heavy rain, cloudy.
" 30	...	73.5	77.5	74	Cloudy, heavy rain.
" 31	67.5	69.5	80	73	Cloudy with rain.
June 1	67	72	78.5	73.5	Cloudy.
" 2	71	70.5	72.5	71	Steady rain, Cloudy.
" 3	67	69	69.5	69.5	Rain, thick weather.
" 4	68.5	68.5	68	67	Incessant rain.
" 5	67	71	75.5	75	Clouded over.
" 6	71	73	76.5	74	Foggy and cloudy.
" 7	69	76	84	76	Hazy and cloudy.
" 8	72.5	76	83	77	Thick mist, cloudy.
" 9	75	76	79.5	76	Hazy and cloudy.
" 10	72	76.5	79	80.5	Cloudy and close.
" 11	74	77.5	83	72.5	Cloudy, squally from S.W. with thunder, rain all night.
			1 $\frac{1}{2}$. 10'		
" 12	71.5	71.5	74	70	Cloudy with rain.
" 13	68	74	79	75	Clear and cloudy.
" 14	71	76	86	81	Cloudy (Thermr. exposed 116°. river water 73°).
" 15	72	75	85	77	Clear, close and sultry.
" 16	76	81	88	76	Cloudy, thunder.
" 17	...	81	88	81	Cloudy, (after Thermr. 90°).
" 18	75	81	91	82	Cloudy, rain at night.
" 19	75	82	93	68.5	Cloudy with rain.
" 20	64	72	70.9	69	Heavy rain, cloudy.
" 21	...	71	80	72	Cloudy, (river water 74°).
" 22	71	77	91.9	77	Clear and cloudy.
" 23	76	80	84	79	Clear and cloudy.
" 24	79	82	85	82	Cloudy.
" 25	75	76	78	76	Cloudy.
" 26	76	79	82	80	Cloudy.
" 27	78	87	81	68	Cloudy with rain, during aftern. strong gale from N.W. to W.b.N., with rain and wind.
28	60	72	...	...	Cloudy.



ANDAMAN ISLANDERS

from Photographs

Papers relating to the Aborigines of the Andaman Islands.

(COMMUNICATED BY THE GOVERNMENT OF INDIA.)

From Captain J. C. HAUGHTON, Superintendent of Port Blair, to W. GREY, Esquire, Secretary to the Government of India, No. 67, dated the 10th January, 1861.

In continuation of my letter No. 53, of 11th November, 1860, I have the honor to report our further intercourse with the Aborigines.

2. On 15th December, a party of them came upon some men of the *Clyde* who were getting water at the watering-place, and slightly wounded one European sailor. The men went off immediately to the ship, a boat was sent to recover some buckets and clothes which had been abandoned, an Andamanese swam off to it with the clothes, —the buckets had been destroyed for the sake of the hoops.

3. On the 17th December, a party of convicts cutting bamboos, West of Viper Island, was shot at from an ambuscade, and one man was wounded by an arrow, but not severely. The Natives were not seen, so that the Guard could not use their weapons.

4. On the 31st, the Gangsman at Viper Island seeing some Aborigines on the other shore went over to them, and gave them some plantains. On 1st January, he went to meet them at the same place on their calling out to him, and again gave them some plantains. Before parting, they returned the favour with a shower of arrows, by one of which a boatman was wounded. He has since died of lockjaw. The cause of this hostility the Gangsman attributes to the European Apothecary having come down to look on from the opposite shore, and having been seen by them.

5. On the 3rd January, three of the Aborigines landed on Viper Island, and walked all over it. Some plantains were given to them. They saw a young pig and attempted to carry it off, but were prevented.

6. On 4th January, they again to the number of five persons landed on Viper Island, *viz.*, two boys and three men—I happened to visit the Island as they were leaving. They had roamed over the Island, and had been rather injudiciously allowed to lade themselves

with as many plantains as they could carry. I found them with a rotten and broken canoc which they were endeavouring to get into, with a full load of plantains,—after baling out two or three times with a nautilus shell, they at last set off, but were eventually compelled to get into the water and swim behind the canoe, pushing it along. During the time I saw them—some twenty minutes—they were examined by myself and the European Guard without betraying the least symptom of fear; they laughed and talked incessantly, and were quite ready to dance if any one clapped hands by way of music. They had bows and arrows with them, which however they did not attempt to use.

7. I enjoined on the Gangsmen greater caution, and referred them to the orders they had already received, *viz.*, to signal away any Aborigines coming armed, and to allow them to land only on their leaving their weapons on the opposite shore. I may here note that experience has fully proved that these people, with all their extreme rudeness, fully understand it to be good manners to leave weapons behind when meeting strangers. The Gangsmen were also again warned not to encourage plunder, by allowing them to help themselves *ad libitum*, but directed to restrict the Aborigines closely to that moderate amount which should be given to them.

8. On the 9th, eight Aborigines came over again in a canoe to Viper Island. Four came up and four remained in their canoe. The former were fed as usual, and dismissed with a full stalk of plantains to each; they took what they had received down to their canoe, and returned for more. On being refused, they rushed into the convict lines, and began to plunder. The Sebundy Guard was called, and when they came in sight, the Gangsman caused the Aborigines to be seized by convicts. Their bows and arrows, with which they had threatened people, were taken from them, and after a short time they were released and suffered to depart. The Gangsman reports that as they left, another canoe, full of Aborigines, came, who however returned with their fellows. The Gangsman begged he might be allowed to keep them off in future, as he apprehended mischief.

9. He was again referred to his standing orders, *viz.*, to prevent any from landing till they had deposited their arms on the other

shore, to treat them kindly, feed them moderately, and dismiss them. He was directed to prevent them from landing armed, and to seize any who though unarmed should persist in plundering.

10. On the next day, the 10th January, the Gangsman reported that a large number had come down on the opposite or Western shore, facing Viper Island, of whom eight came over in one canoe. That in spite of the presence of the Madras Guard, and the exhibition of muskets, they had landed and cut plantains by force, lading their boat so full that to enable them to carry off their plunder they were obliged to leave three of their number behind. These three he seized, and it appearing that the canoe was returning with a larger number, he requested the Guard to fire over them, whercon the party in the boat, together with those on the shore, fled. In seizing the three, one convict was wounded with a knife made from iron hoop, which the savage carried suspended from his neck.

11. One of these Aborigines, afterwards named by the sailors Punch Blair, was recognised as having been always a foremost personage, and as being the man who unprovoked shot the arrow on 31st December, from the result of which a boatman lost his life.

12. The Aborigines did not appear again in that quarter immediately. On the 14th, however, a party of eight came down upon a gang of convicts cleaning a path from Atlanta Point to Navy Bay, and without much resistance on their part, carried off the tools with which they were working; they also took the tickets bearing the convicts' numbers, the pieces of string, &c., about their persons, and the Juneo or Brahminical thread of those that wore it.

13. Previous to this occurrence, Aborigines had not been known to cross the line upon which the convicts were working for at least fifteen months. A Guard of 20 Sebundies were ordered to support the party next day.

14. On the 15th, this party was again attacked. The Sebundies fired a few shots which proved sufficiently harmless, and the convict Gangsmen with the party seized and bound three of the Aborigines, taking their arms from them. Of the Sebundies, one was wounded with an arrow, three convicts were also wounded, two with arrows, and one with a bad bite in the arm. Of the Aborigines, two had ribs broken, and two also had slight bayonet wounds, all I am sorry to say inflicted by the Sebundies after their capture.

15. One of the men captured had a convict's ticket hung from his neck ; this as well as an axe, Juneos, &c., found on them, had been plundered from the convicts on the previous day.

16. On 16th, Punch, who had been closely guarded by the Naval Brigade, managed to give them the slip. Being the most boyish of the party, though no boy—he had only been secured with a rope, which he bit through in silence during the night ; once that he had made a rush in the dark, the sentry might as well have attempted to catch a fox as him. The whole Brigade was turned out in an unsuccessful chase after him.

17. On the 18th, one of the male convicts from the Punjab escaped from Viper Island with the woman—a female convict from the same quarter—he had espoused. On 24th, a canoe was seen passing Viper Isle with an Andamanese in it, having a white garment on—it was fired upon, the clothed one being, it was supposed, Punch. In the canoe, which the men instantly abandoned, was found a tin containing Ghee, which could only have been of the stock of the convict who ran away on the 18th. About the same time, distant from Viper Island six or seven miles, a very large canoe containing eight or ten persons was observed coming round the North Point of the Harbour. Mr. Brown of the Naval Brigade was sent with a boat to observe them. Meanwhile looking on with a glass, I distinctly saw a party on shore, shooting fish with bows and arrows, and taking shell fish, going parallel to the canoe. The shore party had one man with white cloth round his head and waist, and two men were painted bright red from head to foot, but otherwise in a state of nature.

18. I observed, as Mr. Brown's boat approached the party, a portion of them, including the white clothed one, who was, I think, an Andamanese, disappeared in the jungle. A number, however, swam off boldly to the boat, one very distinctly, before he entered the water, waving a red cloth. Mr. Brown observed something in their motions which led him to distrust them. He caused a shot to be fired over them, whereon they made off. The red cloth was abandoned by the Aborigine, and has since been identified as the upper clothing of the female who ran away on the 18th.

19. On 29th, the Aborigines who had been taken out for an airing attempted to bolt. They violently resisted recapture, but ineffectually.

20. The course to adopt with regard to these people has been a subject of much anxiety to me. If too much encouraged, our people were liable to be plundered, killed, or wounded—on the other hand without some encouragement we must for ever remain strangers, and, it would seem, at war with them. My endeavour has been to maintain the golden mean,—at all times to avoid aggressive attacks and bloodshed,—to treat them kindly, and at the same time not to mislead them into plundering and killing our people.

21. Considering the circumstances under which they came into our hands, *viz.*, that three were taken in an aggressive attack, that the other three, though not actually at the time fighting against us, formed a portion of an armed plundering party, and that one of them had, as far as I have the means of knowing, without the least provocation, inflicted a wound on one of our party, from the effect of which he died,—I have thought myself warranted in detaining them with a view to their being made, if possible, the means of intercourse with their countrymen hereafter.

22. But I find it impossible to retain them here without an amount of restraint which would defeat entirely our object in keeping them. The temptation to escape is too great, and they are as slippery as eels.

23. One of them is old and grey headed, another of them is deformed (hump-backed), and stupid. These two I propose to keep for a time and release. The other three I purpose shipping to the Commissioner of Pegu, to be retained for a few months, taught a little English, and sent back.

24. I consider the climate and circumstances of the Tenasserim Coast the most favorable for them, and with reference to this fact, and the fate of the man captured by the Andaman Committee, abstain from sending them to Calcutta.

25. They will be embarked on the *Tubal Cain* bound to Rangoon, and I have requested the Officer commanding the Naval Brigade to send with them one of the men who has been specially in charge of them, to remain till his services are dispensed with by Colonel Phayre.

26. Apart from the natural effort to regain liberty, they have shown themselves quiet and tractable. They appear fond of their keepers. They caress children and young animals, and seem kind to

one another, but I will not on the present occasion enter on an account of their manners.

27. In conclusion I trust my proceedings with regard to these people will meet the approval of the Government, and that in such case the Government will be pleased to instruct Colonel Phayre accordingly.

From Captain J. C. HAUGHTON, Superintendent Port Blair, to W. GREY, Esquire, Secretary to Government of India, No. 85, dated the 27th March, 1861.

In continuation of my letter No. 67, of 10th January, I have the honor to report for the information of His Honor the President in Council, that finding nothing further was to be gained by keeping the two Aborigines remaining in custody, I released them on the spot where they had been captured on 15th February.

2. They were supplied with as many yams, plantains, old hoops, and other trifling articles of little value, as they could carry, care was taken not to give them anything that was likely to be converted into a weapon of offence.

3. When they finally left us, they shewed great reluctance at parting with their keeper. They kissed his hands, and tried to induce him to accompany them, I cannot doubt but that they felt affection for him.

4. The effect of the capture and treatment of these men as yet appears to be good, we have had no attack since, and a few days ago one of our boats a short way down the coast fell in with a party of them, among whom the humpbacked man named by the Sailors "Tuesday Blair," was recognized. They laid aside their bows and arrows and came down to the boat, two or three of their number remaining with the women and arms, watching about one hundred paces off. One got into the boat. They asked eagerly for plantains, which they call *cangary* or *hangary*. One of the Seamen wishing to possess himself of a bow, made them to understand by signs what he wanted, this was called for, but no sufficiently tempting offer in exchange for it being made, it was taken back again. The boatmen made them a present of a fishing line and some hooks, and parted with them on friendly terms. On the evening of 28th March being

myself out for a sail north of the harbour, I landed at a place which had the appearance of being supplied with fresh water. Though no native was in sight, footmarks in the sand assured me they were close by; and in fact we soon observed a party watching us at a distance. On re-embarking I hung up a bunch of plantains brought to meet the contingency of our meeting them. The party as we left cautiously approached the spot, and when they saw the plantains, rushed at them, and apparently in a few seconds left none remaining. I may here remark that the plantain appears to be indigenous, but in its wild state, the fruit is a mere bag of large seeds, slightly covered with glutinous matter.

5. The general impression conveyed to us by the demeanour of the captives was very favorable. They appeared kind to one another, and generally when not in the act of attempting escape, very gentle and tractable. Tuesday had one of his ribs broken by a Sebundy after capture, while being brought in—a piece of wanton cruelty duly noticed by me. His comrades at his request scarified him with broken glass, and, on being furnished with a cupping lancet, performed the operation very successfully, to his great relief. If allowed they would eat from morning till night. The food they chiefly preferred was pig's flesh, fish, unripe plantains, (which they roast) yams, rice and biscuit,—ripe plantains they cared but little for. It was observed that whatever they received was honestly divided, though the party into whose hands it first fell took care to help himself first. Any food remaining at night was carefully packed up to be eaten in the morning.

6. It is a matter of much regret that so very few words of their language have been acquired. The restraint under which it was necessary to keep them, and want of time, prevented me from devoting myself to the interesting task of learning something of it. The sound of it is not unpleasing to the ear, and it would appear to be more regular than the Burmese. We judged it to be polysyllabic, but I must confess that our slender vocabulary cannot be appealed to with confidence. To acquire anything like certainty regarding it, requires the devotion of much time and patient attention to it.

7. There is one point of great interest regarding them which I must not suffer to pass unnoticed—the question as to whether they acknowledge any spiritual power or not? Colonel Symes

says they do. The convict Doodnath, who lived among them for thirteen months, assured me that he could discover no trace of religious worship or the acknowledgment of any unseen power among them. It was reported to me by their keepers, that they daily, but not at any fixed time, went through what was supposed to be worship. The time chosen was when they were by themselves in the small room appropriated to them. They all sat, and one repeated some words to which all the rest responded, touching in turn various parts for their bodies. This would last for more than half an hour. I was very anxious to satisfy myself on this subject, but though I gave directions that I should be informed whenever they were so engaged, could not gratify myself in this respect, as they invariably left off when they discovered that they were observed.

8. I append a list of the few words acquired from them, and also some notes made by Lieutenant S. Hellard, Indian Navy, while they were in his charge, which I trust may not be without interest.

9. In conclusion, I beg to assure His Lordship the Governor General in Council, that it will always continue to be my anxious desire not only to prevent any aggression upon the natives, but if possible to conciliate them—the task is however a delicate and difficult one.

P. S.—Since the foregoing was written, a party has visited Viper Island; they came unarmed, and instead of attempting to take plantains by force, begged for them. The beggar's whine is thoroughly understood and used even here.

NOTES ON THE ANDAMANESE CAPTURED AT PORT BLAIR.

Thursday, 10th January, 1861.—Three of the aborigines captured at Viper Island. Went up in the launch, and found them in the stocks, and apparently quite indifferent, until taken to the boat, handcuffed with their hands behind their backs. In beating down, they seemed to expect to be landed whenever we neared the shore: they instantly asked for *punno* (water) and all three at the same moment managed to bring their hands in front. On landing at Ross Island they were very sullen, but eating plantains freely or any

thing else that was given them. During the night one remained awake, and two out of the three managed to get off their handcuffs, their wrist being remarkably small. A man was appointed to look after each, and they named them Punch, Friday, and Crusoe, with the surname of Blair. They did not appear the least astonished at any thing they saw, nor do they like the men over them to *leave them*.

11th.—Fish being brought for them, Crusoe turned cook, opening and cleaning them with his teeth, and, when done, divided it all equally; this finished, he roasted green plantains, and they all ate enormously. During the night the one on watch, Punch, fancied the sentry was asleep, and awoke the others to be ready for a run; he then crept to the bottom of the bed, but a box on the ear soon convinced him that if Jack did sleep it was with his weather-eye lifting. When taken they were quite in a state of nature, but to-day they were dressed and taken up to the Superintendent's house. Here they appeared somewhat surprised, particularly at a large mirror, at which they grinned, but they were very much taken up with little Harry H—, and so inquisitive did they become, that Mr. Punch wished to lift his clothes to see whether he was a boy or girl; he also wished to take ornaments from the neck of one of the native women. They now are not the least afraid, although at times very sullen.

12th.—Had all three at the Officers' Quarters, with the view of picking up some of their language, but they were so much taken up with pictures and other things, that they merely repeated every word we said. Their height is: Friday Blair, 4 feet 10 inches; Punch Blair, 5 feet 4 inches; Crusoe Blair, 5 feet 2½ inches.

13th.—Being Sunday, all three were nicely dressed in white, with straw hats with "I. N. Brigade" on the ribbon, which was a vast improvement. In the afternoon they went for a walk on the beach, and went over the gun-boat, walking after their keepers in a quiet orderly manner. Every thing like metal they admire and want, and when the handcuffs were removed they did not wish them to be taken away, and at the blacksmith's shop they wanted to take away all the bar iron. In the evening seeing the new moon for the first time they called out Auekalareoo, and commenced dancing, and in-

sisting on the men doing so with them, clapping with their hands to keep time, so that this is no doubt a great day with them.

14th.—They seem to improve daily, and their health is good. They all went to see the men at work at their different trades, but seemed only to care for the blacksmith and tinker. Punch seeing an English woman wished to kiss her, and Friday took the chain, a silver one, off an ayah's neck, which was of course returned. Seeing me he came up, and taking hold of my beard, put his hand inside my shirt collar, to see whether I had a chain of any kind. He also made motions to another officer, that he would cut his throat for his gold chain and ring; they are apparently fond of all animals, and have constantly a cat and a dog in their arms. They are very suspicious of our food, but will take anything uncooked, but they don't appear to eat undressed meat of any kind, and they also share all they get equally; at one meal they will eat a bunch of plantains weighing 9 seers, or eighteen pounds, besides meat. When the natives of India were near them, they mutter at them, but it is impossible to catch the words, but it appears from their manner to be abuse. They were asking for their fish to-day, and having none, a pigeon was given to each, which they cleaned and boiled, but they were very much puzzled to see four killed at one shot. Crusoe seeing a spy-glass, took it up, and brought it to the ready, taking aim at the same time, he then made a noise with his mouth, and threw his head back, as if he was killed. The working party at Aberdeen were attacked to-day, and driven in with the loss of all their tools, and a party of men were sent (N. B.) but saw nothing of the aborigines; although they recovered some of the axes, &c. The officer states that he should say about twenty had been there, the natives report fifty. A strong guard will be in future sent to protect the convicts. The savages are evidently accustomed to food the instant they awake, and if any thing is left they roll it up in a piece of cloth, and mar it down, in the same way they hide away bits of iron of any kind: they seem quite resigned, and do not appear to care for their own free land.

15th.—The aborigines again attacked and wounded the convicts working in the jungle, also one of the Sebundy Guard, but three were taken prisoners, and brought over, two are old men, and the other a nice looking lad. I was informed that one of them, the

oldest, and who has been injured in the back apparently by a shot some time back, knocked over eight natives before he was taken prisoner, some bows and arrows were taken with these men; they are nearly the same as the others, and all about the same height. Their teeth appear to be all worn down flat, not sharp as in other people's. On their being taken to the Barracks, their friends came to meet them, but they are not of the same party apparently, and they did not show any sign of pleasure at seeing them. Signs were made to take them to the wash-house, and here they were scrubbed, excepting the injured man, who was carefully placed on a cot until the arrival of medical aid, when he was fomented on the back, and had some medicine, and he slept for some time, and could then eat a good supper. At night these three were taken to another part of the barracks, when they all became frightened, and clung to the men in charge, and begged them not to let them go; and, to make them quite easy, they were shown where they were going, and they went to bed quite contentedly. They dance and sing every evening, but they require to be constantly watched, as they want every thing they see. One of the men passed during the day with some fresh pork, and they caught hold of him, and insisted on having some, calling out *Rhogo! Rhogo!* (pig, pig.) The instant food is given to them they eat, and if you tell them that they do not want it, they draw in their stomachs, as though they wished you to understand they were empty. The men taken to-day are very much thinner than the others, and their heads are all shaved; one has the great toe of his right foot off, and he says it was taken off by a large clam. He is named Toeless Blair, height* : another has a long scar extending from above the knee down to the ankle, and is named Tuesday Blair, height the other is named Jumbo Blair height Crusoe was most anxious to have them dressed, and without being told they took off all the wild ornaments, and threw them down. One man had a large quantity of rubbish about his neck; also a convict's ticket, and even a Brahmin's thread, and two old rusty nails.

16th.—This morning they were in sad tribulation because they had no fish, and the beef and vegetables given by the Steward did not satisfy them, but before eleven some came up, and they were

* [These blanks are in the original.—Eds.]

perfectly frantic, dancing and caressing the man who brought it up. Mr. Crusoe turned doctor, he got the sick man up, washed his back with cold water, and punctured it all over with a sharp piece of glass which appeared to relieve him vastly, and he then washed off the blood, and turned to clean and cook the fish, eating all the small ones first, and leaving the coarser kind for the evening meal: in the evening they danced to the fiddle, and appeared in high glee.

17th.—About half-past three Punch made his escape, having succeeded in the night to get his handcuffs off, but these were too precious to be left behind. Every search was made immediately, but the jungle gave him shelter, until he no doubt swam to the mainland, to fetch which he must be an expert swimmer, as it was blowing hard and a good sea rolling in. Friday had his irons off his hands, and was evidently ready for a start, but the first noise caused an alarm, and to his no small annoyance all his hopes were frustrated. On the principle of locking the stable door, the whole of them were placed in slight leg irons, which will at least prevent their removing far: all day they have been very sullen, and when out, their eyes seem to be constantly fixed on Atalanta Point, as though they expected aid from that quarter.

18th.—This morning, when raining, and they wished to go out, they took their clothes off first, so that they might not get wet. They still keep sullen, and are evidently ready for a bolt, provided they see a favourable opportunity, and with no place of security, and their well known cunning, it is impossible to keep them, however strongly watched. Shortly before sunset the air being cool and damp, I found them sitting round the fire, and each had a large piece of it holding it between his legs.

19th.—No fish being caught to-day, they had only plantains, and in the evening Crusoe went up to H. Smith and kissed him, at the same time pointing to the barracks, and making signs he was hungry, for sometimes they went to the men's messes of an evening, but since the escape it has not been allowed.

20th.—Irons are not at all pleasant, and to hear them growl is not bad; they are very anxious to have them taken off, and towards dark, they pretend to have pains in all their limbs. Crusoe asked so as to be understood when he would be let go.

21st.—To-day they beg hard to have the irons off, and promise as well as they can not to run away, but it must not be done.

22nd.—Not at all pleased at having to clean their room out; the beds they are almost too lazy to wash, but would eat all day if allowed.

1. Bow	Borogelly.	15. Take off.....	Ne giah.
2. Fly	Boomee.	16. To paddle ...	Cheilla.
3. Bow-string.	Flyda.	17. Tongs	Chy.
4. Water, give.	Pano de walay.	18. Moon.....	Chuckalareoo.
5. Yes	Oh.	19. Whiskers ...	Sooka.
6. Flesh.....	Rogo.	20. Music	Dentregnah.
7. Fowl	Deer.	21. Eat.....	Lay.
8. Shell	Ortamboo.	22. To give	De walay.
9. To cut	Cha lock.	23. Yam	Chatah.
10. Knife.....	Coono.	24. Fish	Dar, Jouh.
11. To drink ...	Meengohee	25. No good ...	Fa mackrey.
12. Canoe	Hobab.	26. Wood	Chopah.
13. Water	Panno.	27. Bed, quilt ...	Doo tram.
14. Plantains ...	Changrah.		

A Note on certain Aborigines of the Andaman Islands, by Lieut.-Colonel ALBERT FYTCHE, Commissioner of the Tenasserim and Martaban Provinces.

A chance has occurred to me lately of observing three Aborigines of the Andamans, who were captured in the vicinity of Port Blair, some four months ago, in an attempt, together with others of their countrymen, to acquire possession of the working implements of a party of convicts. They were however surrounded by the convicts, who happened to be in considerable numbers at the time, and as many as seven of them were taken prisoners. These were deprived of their arms, and detained for some weeks at Port Blair, when one of them managed to effect his escape, and three others were released from durance. The remaining three who were less advanced in years than the rest of the party, it was deemed advisable to send off by a Steamer leaving the settlement for Rangoon, with a view to ascertain whether some knowledge of their language could be acquired, and at the same time to impart to them some idea of the power and resources of their captors.

While in Rangoon, they were lodged for security's sake within the precincts of the Jail, under charge of an English Sailor, who took them out daily for a walk about the town and suburbs. Though regarded with great curiosity by the Burmese, they did not appear to be at all disconcerted by the notice they occasioned. No progress was however made in acquiring means of communication with them, and it was thought desirable to forward them to Moulmein, from which place they might the more readily be shipped to their own country, should circumstances require it. On their landing at Moulmein from the Steamer, they happened to meet, and recognize in the street, an intelligent Burman, who was formerly in the service of Captain Haughton, the present Superintendent of Port Blair, a man who had moreover a passable knowledge of the English language, and who willingly undertook the charge of them upon the terms offered to him.

On the voyage from Rangoon to Moulmein, Mr. Blyth of our Society had a constant opportunity of observing them, and contrived to ingratiate himself into their good favour. Short as had been their introduction into civilized life, they had already acquired a fondness for tobacco, and he states there was no better passport to their good graces than an offer of a cheroot, and it was amusing to observe how quickly they learned the pocket, in which any one kept his cheroots, for they would point to the pocket, and give a gesture by way of hint, that they would like to enjoy one. Being thus indulged, they would quite politely offer to take a light from the cigar of any one, who happened to be smoking in their vicinity, and in return would offer a light from their cigar, when it was needed. They were in high spirits when on board the Steamer, evidently supposing that the vessel was destined for their own country, they had picked up the name Port Blair, and could always most readily indicate the exact direction of their own islands, pointing to the position of the sun as their guide. This they intimated by signs, that it would be difficult to misunderstand. They were accordingly disappointed when brought ashore at Moulmein, and were at first down-hearted, when the Steamer left without taking them, but apparently recovered their self-possession in the course of a few days. One however was ailing from a pulmonary disorder, from which he is still suffering.

Since the arrival of these men at Moulmein, I have made an especial study of them, and their reputed similarity to the true African Negro appears to have been greatly exaggerated. The forehead is well formed, and not retreating, neither are the lips coarse and projecting, and the nostrils are by no means broad, the ear is small and well formed, the hair unlike the so-called woolly hair of a Negro and growing conspicuously in separate detached tufts. They have absolutely no trace of whiskers, beard, or mustache, and have been long enough in captivity for the growth of such, were it existent. The hair of the head also shews little disposition to elongate, it continues very short and crisped. The complexion is not a deep black, but rather of a sooty hue, hands and feet small, the latter not exhibiting the projecting heel of the true Negro.

The Andamanese appear to be one of many remnants, still extant, of a race, that was formerly very extensively diffused over South Eastern Asia and its Archipelago, which, for the most part, has been extirpated by races more advanced towards civilization, being now driven to remote islands, or mountain fastnesses, such as the Andamans, the interior of the great Nicobar (where they are reported to be constantly at warfare with the people of the coast), and within the present century for certain (*vide* Crawford), and probably even now, there are, or were, tribes of them in the mountains of the interior of the Malayan Peninsula, Sumatra, Borneo, and especially the Philippine Islands, where the island of Negros, derives this, its Spanish appellation, from its being inhabited by a blackish race, variously known as the Negrillo, Negrito, or true Papuan. The race has its head quarters in the great islands of Papua or New Guinea, where some tribes are found attaining to six feet in stature, whilst others are as diminutive as the Andamanese.

Upon the island-continent of Australia, the true Papuan type has never been detected; but it formerly constituted the people of Tasmania, so numerous at the time of Captain Cook's visit, but which race is there now all but extinct, three or four individuals only surviving. The history of the capture of the last remnant of the race inhabiting Tasmania is well known, and their removal to an island in Bass's Straits, where the Government provided them with blankets, and a certain amount of food; but it is remarkable, that they died off fast, and chiefly from pulmonary consumption.

The same remark has been made also of the New Zealander, belonging to a very different race of humankind, since the introduction of blankets, and other European clothing amongst them, they having also been subject to pulmonary diseases, which seem to have been previously unknown.

Now it is remarkable of the three Andamanese at present in Moulmein, one is already suffering from a pulmonary affection, and it is desirable, that he, at least, should be returned to Port Blair, by the first opportunity. The others also appear pining from this cause, and from home sickness,—they are not likely to learn much more than what they have already learnt, should their stay be further protracted. Besides it may not be advisable to overstrain their faculties. They are quite able to appreciate the kindness, with which they have been treated, and it is well that they should communicate this to their fellow savages. It may be finally added, that they have been uniformly tractable and good humored, and have manifested a marked partiality for children. It is to be regretted, that scarcely a word has been gathered of their language, the sounds of which are by no means confused, or inarticulate. The reason is, that they persist in imitating every sound, that is addressed to them, and it is only when they try to make themselves understood, or in speaking one to another, that an idea of their vocal enunciation can be obtained. Although in the prime of life, they are in fact too old to be taught much. But should any accident happen to throw children of the race under the care of Captain Haughton, there might then be a better opportunity of acquiring means of linguistic communication.

Since the foregoing remarks were committed to paper, our Andamanese friends conceived the idea of an escapade, and very nearly carried it into effect. One very boisterous and rainy night, it was discovered at 2 A. M., that they had absconded, and at dawn their foot prints were traced to a sawpit, on the banks of the Moulmein river, near their late place of abode, where it appears they had collected a few loose planks, with which they had formed a raft, and boldly launched themselves off. A single large yam was the only provision they had taken with them, as far as could be learned. Three police boats were sent immediately in pursuit of the fugitives, and at nightfall intelligence was obtained of their having been seen by a Talong, on an islet about twelve miles below Moulmein. On

the same night they must have again pushed forward on their raft, which was soon broken up on their arrival in rough water, whereupon they swam ashore, landing at the S. E. corner of the Island of Belookywn, near the entrance of the river. They were there seen by some villagers, who, suspecting them to be runaways, took them to their kyee-dan-gyee, or village elder, by whom they were taken proper care of, and forwarded into Moulmein.

On the evening prior to their departure, they went to see Major Tickell, to whose charge they were intrusted, and appeared to be in particularly high spirits, patting him and others on the back, with the utmost good humour, and talking to each other in (to us) an unintelligible language. When brought before Major Tickell on their return, they appeared just as good humoured as ever, quite unabashed and unconscious of having done wrong. They were very hungry when first taken, as might be supposed, and submitted unrepiningly to their destiny, very probably conscious that they had escaped a worse evil.

Moulmein, June 10th, 1861.

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*On the Identity of the Toramāṇas of Eran, Gwalior and Kashmir.—*  
*By Bābu RĀJENDRALĀLA MITRA.*

Some months ago I received from Mr. Grote a number of Sanskrita inscriptions collected, at various times, by Colonel Alexander Cunningham, during his tours in central India. They are in facsimile on paper, and prepared with great care and accuracy; but owing to decay and defacement of the stones from which they have been taken, most of them are full of lacunæ and ill-adapted to afford any reliable historical data. Of those which are legible, the most ancient appears to be a record comprised in 9 lines of the Gupta characters inscribed on a slab 2' 7" by 7" inches. The position which the stone occupies is the porch of a temple in the fort of Gwalior, and the inscription is well cut and well preserved, excepting a small portion on the left side which, having been covered by the plastering of the adjoining wall or otherwise defaced, is quite obliterated on the facsimile. The first line of the record which contains a complete stanza in the mālīnī meter has lost the initial syllable. The second has three syllables missing. The subsequent lines being in prose, it is difficult to say the number of letters that

have been lost of them. It is evident, however, that the extent of the loss cannot be great, and that of no material consequence in an antiquarian point of view, however much it may stand in the way of a literal interpretation of the monument.

The subject of the record is the dedication of a temple to the sun in the 15th year of the reign of PASHUPATI son of TORAMĀNA, by one MÁTRICHETA son of MÁTRIDĀSA and grandson of MÁTRITULA. No information has been vouchsafed as to the antecedents of the donor, nor of the sovereign in whose reign the dedication was made, and entire silence has been preserved as to their native country. The name of the hill on which the temple is said to have been erected was Sarpāhvaya, and that of the engraver Kesava, the former being either an *alias* or the name of a particular spot of Udayagiri or the Gwalior Hill.

The historical magnitude of this event cannot but be extremely insignificant, and the only point of importance in the document—the identity of the prince named—is so involved in doubt that nothing better than a conjecture can be hazarded in regard to it.

In one of the two inscriptions brought from Eran by Captain Burt, James Prinsep noticed the name of a paramount sovereign whom he called Tārapāni. He was supposed to have been the successor of Budhagupta in Saurāstra and liege lord of a petty chief of Bhupal who styled himself Mahārāja Mátrivishnu. Professor Lassen, when commenting upon these inscriptions in his “Indian Antiquities,” set the title *Rājādhirāja* “king of kings” to the credit of oriental hyperbole, and assumed Tārapāni, the owner of it, to have been “a viceroy of Budhagupta in Bhupal or Eastern Malwa.” The arguments, however, from which the Professor’s conclusions are drawn, are too weak to admit of any scrutiny. Prinsep, notwithstanding his untiring diligence and splendid critical acumen, was obliged, owing to his own want of familiarity with the Sanskrita, to depend upon his interpreters, and they, blind to the importance of the work upon which he was so ardently engaged, neglected their duty and trifled with him in all matters, in which he could not readily detect the imposition they practiced upon him. Hence it is, that his translation of the Eran records (*vide ante* Vol. VII. p. 631 *et seq.*) is sadly defective in many respects. Even the proper names in two instances are misrepresented, and the paramount

sovereign Tárápáni appears only to be a mislection of Toramāṇa. Col. Cunningham was the first to point out the mistake with regard to the name of the king, but by assuming the rest of Prinsep's translation to be correct, he was led to opinions which the advantages of subsequent researches shew to be other than well-founded. He supposed that the record adverted to a regency of Dhanyavishṇu during the minority of the young prince Toramāṇa, and by a curious mislection of the document now under notice, made him the son of Mátridása and the grandson of Mátrikula.\* According to him the principality of Toramāṇa extended from Eran to the banks of the Jumna, and his reign from A. C. 520 to 550. Mr. Fitz-Edward Hall in his "Note on Budhagupta"†—accepts these deductions with only a few reservations. He assumes Toramāṇa to have been "an usurper and a proximate, if not the immediate, successor of Budhagupta, the first sovereign of a tentative independent branch (of the Gupta dynasty ?) which almost certainly ended with himself."

However this be, from the revised translation of the Eran records lately published by him, it is certain that one Mátrivishṇu who describes himself as a "Mahárájá," "the owner of the splendour of royalty," "of fame recognised as far as the four oceans," "of unimpaired wealth and dignity,"‡ and "victorious in many a battle over his enemies"—was the immediate ruler of a tract of country of which Eran was an integral portion if not the centre, and that he owned allegiance to a suzerain of the name of Budhagupta, whose dominion extended from the banks of the Jumna to that of the Nerbudda, and that his brother Dhanyavishṇu succeeded him in his dominion at a time when one Toramāṇa held the paramount power. This we accept from the statement of the inscriptions, without any reference to the argument implied in the remark of Mr. Hall when he says, "By the kings of all ages the minting of money has been zealously

\* *Bhilsa Topes*, p. 163.

† *Ante*, p. 145.

‡ अक्षिणमानधनस्य It is remarkable that a critic so fastidiously exact as Mr. Hall, should have overlooked the word *māna* in the epithet and translated it "of unimperfect wealth," which at best can be but a dubious praise, quite unworthy of the royalty it is intended to eulogise. His version, in another place, is open to a rhetorical objection from which the original is free. He makes the king acquire, "like as a maiden sometimes elects her husband, the splendour of royalty;" whereas according to the Sanskrit recorder the goddess of royal fortune, *Raja Lakshmi*, elects him as her lord.

reserved as a royalty; and Toramāṇa is known to have coined copper;" for we shall presently shew that a Toramāṇa did strike gold without assuming the imperial purple, and that his copper coins are still extant, not to advert to the privilege of coining held by the Cæsars or younger Rájás of Rome.

The inscriptions are most provokingly silent as to the antecedents of the two sovereigns, and the epithet GUPTA is almost the only voucher\* to the assumption that Budha belonged to the race of Chandragupta Vikramāditya. Of Toramāṇa there is not even that unsatisfactory clue. Prinsep threw out only a conjecture when he called him a king of Saurástra,† and Messrs. Lassen,‡ Cunningham§ and Thomas|| make him a successor of Budhagupta in Ougein on no better grounds. "As the celebrated hill of Udayagiri is mentioned in the Gwalior inscription, there can be no doubt" says, Col. Cunningham, "of the identity of the two Toramāṇas" i. e. of the Gwalior and Eran inscriptions. The similarity of the characters (Gupta) of the two records may be taken, *ad valorem*, as a proof in support of the identity, and the circumstances of the country between the Jumna and the Nurbudda being mentioned in the Eran record,¶ and Udayagiri being situated within that country, may be assumed as another and a strong one in its favour; still the evidence, it must be admitted, is not conclusive. It is quite within the range of possibility that there should be two kings of the same name

\* The only other is the mention of *Fo tho kiuto* as one of the Guptas by Hwán Thsang, Ante, XVII. p. 487.

† Not, as it has been supposed, by the misapprehension of a word in the inscription, which Mr. Hall (Ante p. 18) has read *saṅsurabhu*. It would be a presumption on our part to question the reading of one who has the evidence of his own eyes to support it, and yet we feel disposed to think that Mr. Hall's reading is the offspring of an illusion. The particle *Sam* is seldom if ever used before other than a verb or a participial noun; Páṇini says that prefixes of the class *Gati* (which includes *Sam*) should be used before verbal roots only (ते प्राग्धानेः १।४।८० Bohtlingk I. p. 51.) It is not at all likely, therefore, that the writer of the inscription should have so sinned against grammar, as to put the particle before the noun *sura*, and produce the dubious epithet of *sam* "with," *sura* "a god," and *bhu* "land," Mr. Prinsep's reading is *samsuratam*, from *sam* "with" or "altogether" *su*—"well" and *rata* "pleased," i. e. a country the people of which were well pleased with its government. Such an epithet appears much more appropriate than the amendment of Mr. Hall.

‡ *Indische Alterthumskunde*, II. p. 751.

§ *Bhilsa Topes*, 163.

|| *Journal Rl. As. Soc.* XII. p. 71. et ante XXIV. p. 515.

¶ The allusion is made with reference to Budhagupta, and not Toramāṇa, whose dominion has not been defined.



at different times in the same country, and that inscriptions should be found in the same character bearing their names in a manner, so as to appear that they were productions of one reign. But I believe it will be readily admitted that the arguments in favour of the identity of the two Toramāṇas are stronger than those against it; and if that identity be admitted, I think, we shall find a clue to the antecedents of our monarch which, for purposes of Indian history, may not be altogether worthless.

The Gwalior inscription was put up in the 15th year of the reign of Pashupati, son of Toramāṇa, and at about the time when the Toramāṇa of Eran flourished i. e. about the end of the 5th century A. C. there lived a king of the same name in Kashmir, and the name of his son was Pravarasena *alias* Pashupati. The question hence arises are the two Pashupatis identical? Both are descendants of the solar race; both are said to be the sons of Toramāṇa; both lived at about the same time, and both had considerable influence in central India. According to the history of Kashmir, Pravara was the fourth in a direct line from Meghavāhana, the founder of the Gonardya dynasty. The second monarch of the line was Sreshṭhasena\* whose two sons Hiranya and Toramāṇa succeeded him on his death. The latter, like Cæsar, was never the rightful occupant of a throne, but having been an able and intriguing prince, he long exercised sovereign powers. Kalhana† says that he suppressed the ancient coinage of the country which was known by the name of *Balāhāt*, and issued a gold dinar which continued for a long time to be the standard coin of his race. Specimens of this currency are not now extant, but the number and variety of his copper coins attest the high influence which the prince exercised in his brother's dominions. That influence did not, however, save him from an untimely death in a prison, to which he was consigned for his presumption in striking coins in his own name during the lifetime of his liege lord. Pravara *alias* Pashupati was the only son of Toramāṇa. He was born in the house of a potter when his father was in prison, and was brought up under the care of his

\* In Thomas's Prinsep, vol. II. p. 244, evidently by a misapprehension of the term "grandfather," this king is said to have *Pravarasena* for his *alias*. According to the history of Kashmir, it was from the name of his maternal, and not paternal, grandfather, that Pravara son of Toramāṇa assumed his name.

† Troyer's *Histoire des Rois de Kachmir*, II, p. 137.



maternal grandfather. After a long life spent in travel he wrested his uncle's dominion from the hands of a brahmin usurper Matri-gupta\* on whom Harsa Vikramāditya of Ougein had bestowed it. His reign proved long and highly prosperous. According to his chroniclers he extended his arms from Kashmir to where the Ganges pours into the sea ;† and his minister Morāka, in his name, swayed the royal sceptre in Ceylon. To the south, Pravara extended his conquests as far as Guzarāt, whence he restored Malwa to Silāditya *alias* Pratāpasila son of Vikramāditya, who had been expelled for some time from his patrimony by his enemies. The only return which he exacted, for this act of magnanimity to one whose father had been instrumental in giving away his uncle's dominion to a parasite, was, it is said, no more than the famous throne of Vikrama which was supposed to have been mounted on thirty-two nymphs of rare merit. As an encourager of public works, Pravara's name stands connected with the foundation of the city of S'rīnagara, which he is fabled to have built in compliance with the advice of Vetāla, the demon attendant of Vikrama. A large bridge across the Vitastā (Byas) and several minor works of utility are likewise set down to his credit. Although described as a staunch Hindu and named Pashupati from his ardent devotion to Siva, he seems to have been connected by his mother's side with the followers of, at the time, a heretical faith ; and his uncle Jayandhra claims preëminence for his dedication of a large Vihara to Vrihad Buddha. It is nowhere mentioned that Pravara ever had any control over Gwalior, but the circumstance of his power having extended as far as Guzarāt viā Ougein, would justify the supposition that he had, and that the name in the Gwalior inscription is his.

The first objection which suggests itself against this identification is the fact of Pravara's having assisted the son of Vikramāditya in regaining his paternal throne. Now, if this Vikramāditya be, as supposed by Col. Cunningham, the same with Chandragupta *alias*

\* In an excellent paper on Kālidāsa, read before the Bombay Branch of the Rl. Asiatic Society, Dr. Bhau Dājee has attempted to prove the identity of Mātri-gupta with that renowned poet.

† स गङ्गालिङ्गिताङ्गस्य पूर्व्व वारिनिधेयधात् ।

सैन्येभसदनिष्यन्दिः कालिन्दीसङ्गमन्धिरं ॥

Rāja Tarangini, chap. 3, v. 37.

Harsha Vikramāditya, the Pravara of Kashmir would be synchronous with Kumāragupata, several generations before Budhagupta assumed the royal sceptre, while the prince of the Gwalior inscription, believing him to be identical with the sovereign of the Eran temple, would be a generation after that event. This difficulty, however, is more apparent than real. The title of Vikramāditya has been assumed by so many princes at such different times, and Hindu writers have used it with such utter indifference to precision, that it is quite unsafe as a historical guide, and not at all deserving of the regard which allusions of such contemporaneity usually claim. Where every prince above mediocrity, proclaimed himself a Vikrama, it is futile to expect that the occurrence of the title alone in any ancient document should help us to its date. But were it otherwise, there would still be no difficulty in finding a Vikrama, to whose son our Pravara might have been a benefactor. Skandagupta, the immediate predecessor of Budhagupta, in one of his coins\* calls himself a great Bhāgavat and Vikramāditya, and if we could, relying on Mr. Hall's assumption of Budha having been "the first sovereign of an independant branch which ended with himself," suppose that he had deposed the rightful heir Pratāpāsila *alias* S'ilāditya, Skanda would be the sovereign of whom mention is made in the Rājā Taraṅginī under the title of Vikrama. He was succeeded by an usurper in the person of Budhagupta, who, in his turn yielded the empire to another. It is not at all unlikely that an adventurous and ambitious prince like Toramāna should, with the resources of his brother at command, issue forth from the "hill-enclosed valley" to found a kingdom of his own in the fertile land of central India, the seat of a once flourishing empire, but then distracted by the rule of an usurper, and have himself recognised as the paramount sovereign. Without some such success, it is difficult to suppose, that a prince would venture to assume the high prerogative of issuing money in his own name and suppressing the old currency of the country. Thus he was an usurper in central India and a rebel in his own country. Mr. Hall admits the first, and we have the authority of the Rājā Taraṅginī for the second position. A prince so situated, however successful for a time, could never reign in safety. His brother and liege

\* *Parama bhāgavata Sri Vikramāditya Skandagupta.* Tulsi device coins. Journal Rl. As. Soc. XII. pl. I. p. 51.

lord in the land of his birth naturally looked upon him with fear and envy, and his foreign dependency could not be trusted without the assurance of help from his native country. The usual consequence followed, and he ended his days in prison.

The second objection to the identification would be the date of the *Satrunjaya Māhātmya* which makes S'ilāditya the contemporary of Pravarasena, flourish in the year 477 of the Christian era, while according to the recorded date of the Varāha inscription, coupled with the assumption that the era of that record commenced a little after the third century, in the year 319 A. C., the father of Pravarasena lived at the beginning, if not in the middle, of the sixth century. But Orientalists are very much divided in opinion regarding the origin of the Gupta era. According to Mr. Hall's conjecture its starting point may be taken to be 278 A. C. to which if we add 165 of the Budhagupta inscription, we completely rid ourselves of the anachronism, and have Toramāṇa brought within a few years after 443.

Col. Cunningham in his essay on "the ancient coinage of Kashmir,"\* assumes the Toramāṇa of that country to have reigned from the year 415 to 430 A. C. But, as his revision of the chronology of the Gonardiya dynasty is effected, principally, by a distribution of the 300 years of the reign of Ranāditya among his predecessors, and by casting averages, which when many centuries are taken into account, cannot be so precise as not to admit of a difference of twenty or thirty years, his calculations will not, we presume, be taken as opposed to our assignment of the date of Toramāṇa. It must be admitted that in his Bhilsa Topes,† the learned Colonel has placed the Toramāṇa of the Eran monument in the middle of the sixth century, but as his calculations in that case were founded upon the assumption of the Gupta era having commenced in the middle of the fourth century, they are open to revision whenever the starting point of that era is definitively fixed.

Of the coins of Toramāṇa, three different types are now available,‡ of which the first is of the true Kenerki stamp, exactly similar to the

\* Numismatic Chronicle, vol. VI. p. 18.

† *Loc. cit.*

‡ Mr. E. C. Bayley, C. S. informs me of a copper coin of Pravara with the Kenerki obverse, but the female figure on the reverse mounted on a lion. I hope ere long to have an opportunity of presenting a figure of this unique specimen to the readers of the Journal.

Kashmir coins of the successors of the Toramāna\* of that country ; the second is of the Gupta device, with the Shah profile on the obverse and the peacock on the reverse.† And for the third we have the Shah profile on one and a *chakra* or discus on the other side.‡ These might suggest the idea of two distinct Toramānas, one of central India with the mint mark of the Guptas and the other of Kashmir. But if it be supposed—and there is nothing opposed to it—that Toramāna in his conquered dominions retained the mintage best known to his new subjects, the difficulty may be easily met, and the conjecture regarding the identity of the several Toramānas allowed to stand *pro tempore* as a fact in Indian history.

*Transcript of the Gwalior Inscription.*

I. (जग) (1)ति जलदनीलं(2) ध्वान्तमुत्सारयन्स्त्रैः किरणनिव-  
हजालैर्योमविद्योतयद्भिः उ(दयगिरि) (3)तटाग्रं मण्डयन्(4) यः  
खरागैः चर्कितगम(5)नखेदध्वान्तचञ्चत्स(6) टान्तैः उदयगिरि

II. \* \* \* चस्तभक्तार्त्ति(7)हृत्ता भुवनभवनदीपः शर्वरीनाशहेतुः  
तपित(8)कनर(क?)वैर्यैरंशुभिर्पङ्कजान(9)मभिनवरमणीयं योविधत्ते  
स वोच्यात् (10)—श्रीतोरमाण इति यः प्रथितो

III. \* \* \* पः प्रभूतगुणः सत्यप्रदानसैन्याद्येन (11)महो व्यायत्ता-  
साम्ना तस्योदितकुलकीर्त्तेः पुत्रोत्तुलविक्रमः पतिः पृथ्वाः मिहिरकु-  
लेतिख्यातोभवोत् (12) यः पशुपति प र द म् (13)

IV. \* \* \* (रा) जनि शासति पृथ्वीं पृथुविमललोचने (आ) र्त्ति-  
हरे अभिवर्द्धमानराज्ये पञ्चदशब्दे नृपट्टस्य शशिरश्मिहासविक-  
सितकुमुदोत्पलगन्धशीतलामोदे कार्त्तिकमासे प्राप्ते गगन

V. \* \* \* र्मले भाति द्विजगणमुख्यैरभिसंस्तुते त्रि(14) पुण्याह-  
नादघोषेण तिथिनक्षत्रमुहूर्ते सम्प्राप्ते सुप्रशस्तदिने-मातुलस्य (15)  
तुपौत्रः पुत्रश्च तथैव मातृदासस्य नाम्ना च मातृचेटः पर्व

\* *Numismatic Chronicle*, Vol. VI, pl. I. p. 24.

† Ante vol. XXIV. p. 514.

‡ J. Prinsep's *Antiquities* by Thomas, vol. I. p. XXIV. Fig. 6.

VI. \*\*\*र वास्तव्यः नानाधातुविचित्रे सर्पाङ्गय(16)नान्नि भूधरे  
रम्ये कारितवान् शैलमयं भानोः प्रासादवरमुख्यम् पुण्याभिवृद्धिहेतो-  
र्मातापितुस्तथात्मनश्चैव—वसता च गिरिवरेस्मि(न्) राज्ञः

VII. \*\*\* पदेन ये कारयन्ति भानोश्चन्द्रांशुसमप्रभं गृहप्रवर-  
न्तेषां वासः स्वर्गे यावत्कल्पक्षयो भवति—भक्त्यारवेर्विरचितं सद्धर्म-  
व्यापनं सुकीर्त्तिमयं नाम्ना च केशवेतिप्रथितेन च \* \*

VIII. \*\*\* त्येन—(17) यावच्छर्व्वजटाकलापगहने विद्योतते  
चन्द्रमा दिव्यस्त्रीचरयैर्विभूषिततटो यावच्चमेरुर्नगः यावच्चोरसि नी-  
लनीरदनिभे विष्णुर्विभर्त्युज्ज्वलां श्रींस्ताव (18) द्विरमूर्द्धनि

IX. \*\*\* दमुख्यो \* र \* मे ॥

(1.) Having had an opportunity of shewing my reading of the inscription to Colonel A. Cunningham, I avail myself of this opportunity to express my obligations to that learned antiquarian for his many valuable suggestions. A few of his amendments I have not been able to adopt, but I shall point them out in this and the following notes.

He takes the first visible letter of the inscription to be *p*. I assume it to be *ti* which with the two missing letters before it, which I maintain were *j* and *g*, just make the word *jagati* 'on the earth.'

(2.) *Bílām* and not *uílām* according to Col. C.

(3.) The *u* is distinct after which there is space enough for four letters, which I conjecture were *udayagiri*.

(4.) The letter न् is interlined.

(5.) Col. C. takes the *m* for a *sh*.

(6.) The sibilant is wrong: it should be श्.

(7.) Col. C. reads this part *Grastachakorte*, but the measure won't admit of it. The loss of three syllables at the beginning of the line prevents any satisfactory translation of the entire foot.

(8.) I am indebted to Col. C. for this lection. The word, however is not correct, grammatically, it should be *tapta*.

(9.) पङ्कजानाम् recte.

(10.) The letter *t* is given below the line.

(11.) For सत्यप्रदान सैन्याद्येन, Col. C. reads सत्यप्रदान सोदाद्येन। The meaning of the clause is my guide.

(12.) अभवोत् for अभवत्।

(13.) परदस from *para* "enemy," and *dama* "to subdue." Col. C. reads it वरदस. It may be *baradava* "the noble deva," but the meaning of the word



cannot be guessed. The loss of the initial letters of the next line, stands in the way of a correct explanation.

(14.) The syllable *चै* is not distinct in the facsimile, it is perhaps an expletive of the following word *puṇya*.

(15.) Col. C. reads this *Mātrikulasya* which would mean "the grandson of his mother's race." The *k* is blotted and may either be a *t* or *k*. The context requires the name of the donor's grandfather.

(16.) The first and third syllables doubtful. Col. C reads *supāhaya*.

(17.) There are blots before and after the syllable *चा*, but the measure seems to be complete without any letters being supplied.

(18.) *ओन्नावत्* recte.

### *Translation.*

(May he) who, by his web of innumerable sky-enlightening rays, dispels the darkness which envelops the earth (*a*) like a dark autumnal cloud; whose radiance, passing through the dancing mane of his wandering coursers fatigued by incessant motion, (gilds the peak of the eastern mountain) Udayagiri (*b*) \* \* \* \* he who removes the pain of his frightened worshippers, who is like unto a lamp to this chamber of the world; who is the cause (supreme) of the destruction of night; who bestows its charm to the lotus by his rays bright as molten gold; may he protect you.

He who was celebrated as Sri Toramāṇa \* \* \* \* full of talents innumerable, who subjugated the earth by truth, charity, conciliation, his army and the like. Unto him of the renowned race was born a son of unrivalled prowess named Pashupati, the lord of the earth, and the most distinguished of the solar race (*c*) \* \* \* \* at the time when the earth was governed by such a king of large and lustrous eyes, in the 15th year of the prosperous reign of the remover of all suffering, the pre-eminent sovereign (*d*), in the month of Kartika (when the air was) redolent with the aroma of the Kumuda (*e*) and

(*a*). This word is conjecturally supplied. The only letter visible in the facsimile is *नि* with a perpendicular line before it, which may be the second line of *ग*. Col. Cunningham takes it for a *च*. Vide note 1 of the preceding page.

(*b*). Udayagiri is the fabled mountain on which the sun rises. Here the Gwalior hill on which the temple stands is likewise meant.

(*c*). Literally Mihira kula, and therefore may mean the Mihira race. Mihira is a synonym of the sun.

(*d*). Lit. *Nṛipabṛiṣha* "the bull of kings."

(*e*). *Nymphæa cærulea*.

the Utpala (*f*) just blown by the light of the smiling moonbeams, and the sky was bright with \* \* \* \* on such an auspicious date resonant with the sounds of a holiday, when the lunation, constellation and *muhurta* (*g*) were in such conjunction as is recommended by the chiefs of Brahmans, MÁTRICHETA the son of MÁTRIDÁSA and grandson of MÁTRITULA \* \* \* \* (of the) *Vástavya* (gotra?) (*h*) with a view to promote the virtue of his parents and self, dedicated a noble marble (*i*) temple to the sun on the charming mount Sarpáhvaya radiant with many a metal. Living on this mountain \* \* \* \* Those who cause the dedication of a noble temple, bright as moon-beams, to the sun, live in heaven as long as the cycle (kalpa) lasts (in which such dedication is made) \* \* \* \* This temple, which proclaims the true faith, and is an emblem of noble deeds, was built with (a heart full of) devotion to the sun, by an architect named Kesava \* \* \* \* As long as the moon will sit resplendant on the forest of Sarva's matted locks (*j*); as long as the mountain Meru (*k*) will have its sides graced by the tread of heavenly nymphs, as long as Vishṇu will hold on his blue cloud-like breast, the gorgeous Sri (*l*), even so long on the mountain top may \* \* \* \*

(*f*). *Nymphaea esculenta vel rubra.*

(*g*). A division of time, equal to 48 minutes according to some, and an hour and 36 minutes according to others. Hindu astrologers divide the day into 15 *muhurtas*, of which some are auspicious, others inauspicious.

(*h*). The rendering is open to correction. *Vástavya* "fit for dwelling" may refer to some noun which preceded it, but is now obliterated.

(*i*). Preferably "of stone" *sailamayam*.

(*j*). Sarva is an *alias* of Siva, whose diadem is a crescent, which is generally placed on his matted crown lock with the horns pointed upwards.

(*k*). A fabled mountain in the middle of the earth, the favorite pleasure-ground of heavenly nymphs.

(*l*). A synonym of Lakshmí the wife of Vishṇu. It is also the name of a peculiar mark on Vishṇu's breast caused by a kick he received from the renowned saint Bhṛigu.

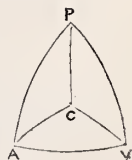
*The great Comet of 1861.—By the Rev. Dr. MACKAY.*

The following paper contains the computations by which the elements of the great Comet of 1861 were determined. They deserve record, partly as being the earliest determination of the elements known in India, but chiefly as being founded on observations taken with a common sextant, reading to  $10''$ , and as showing how much can be done, and with very considerable accuracy, with means apparently so insufficient.

The method adopted was to choose two stars, one to the south, the other to the east, of the comet's apparent position, and, about the same time every available evening, to measure the comet's distance from both very carefully, and, by the mean of several observations, to reduce them to a fixed time. From these observations the comet's A. R. and Declination were computed; and, to ensure greater accuracy, the distance of the comet from a third star was first measured by the sextant, and then computed with its R. A. and Dec., as already found. If the measured and computed distances agreed, the observations were looked upon as trustworthy. The differences, one time with another, averaged a little more than  $1'$  of arc: and as the united effects of nutation, precession, and aberration, partly balancing each other, will not amount to more than a few seconds of arc, while the uncertainty of observation is more than a minute, not wishing to affect accuracy where it was not attainable, I have omitted them altogether. In like manner, not knowing beforehand the comet's distance from the earth, I was unable to correct its position for parallax, leaving the parallax to be applied in the computation of another set.

The stars chosen were Vega and Arcturus (the 3rd being Eta of the Great Bear): and the observations fixed on were those of July 5th, 10th, and 15th.

My normal triangle therefore was P A V, where P A and P V are the North Polar distances of Arcturus and Vega, and A P V the difference of their right ascensions, all taken from the Nautical Almanac. A V was then computed, and the other two angles found by the common rules; thus





$$2. \quad \text{tang } \lambda = \frac{\cos (\phi - \epsilon) \text{ tang } \alpha}{\cos \phi}$$

$$\cos (\phi - \epsilon) = 8.292358$$

$$\text{tang } \alpha = 9.856204$$

$$\hline 8.148562$$

$$\cos \phi = -9.579797$$

$$\text{tang } \lambda = -8.568765$$

$$\therefore \lambda = \text{geoc. long.} = 177^\circ 52' 42''$$

$$3. \quad \text{tang } \beta = \sin \lambda \text{ tang } (\phi - \epsilon)$$

$$\sin \lambda = 8.568455$$

$$\text{tang } (\phi - \epsilon) = 1.707558$$

$$\hline \text{tang } \beta = 0.276013 \therefore \beta = \text{geoc. latitude} = 62^\circ 5' 32''.$$

We have next to find the earth's longitude and radius-vector, which we denote by L and R. Still taking the 15th by way of example, we find in the Nautical Almanac;

| July 15th.         | Sun's long.      | Radius Vector.          |
|--------------------|------------------|-------------------------|
|                    | 112° 54' 7" 7    | 0.0070489               |
| Corr. for 3h. 12m. | + 7 37 7         | Corr. for 3h. 12m. — 40 |
|                    | <hr/> 113 1 45 4 | <hr/> R = 0.0070449     |
| Add 180            |                  |                         |

$$\hline L = \text{earth's long. } 293 \ 1 \ 45 \ 4$$

Results having been obtained, by the same process, for the 5th and 10th, we may now proceed to more direct computation. We use the following additional symbols.

Let  $\delta, \delta' =$  comet's curtate distances from the earth at the 1st and 3rd observations.

$c =$  the chord joining the comet's positions at 1st and 3rd observations.

$r, r'' =$  radii vectores of the comet at the 1st and 3rd observations.

$t, t' =$  intervals between the observations.

$T =$  whole time between 1st and 3rd.

$b, b'' =$  heliocentric latitudes for 1st and 3rd.

$l, l'' =$  ————— longitudes.

$u, u'' =$  arguments of latitude.



$\theta, \theta''$  = true anomalies.

$\phi$  = inclination.

$\Omega$  = ascending node (longitude of).

$\pi$  = long. of perihelion.

$D$  = perihelion distance.

$P$  = time of perihelion passage.

The method I have followed is that of Olbers with slight variations from Delambre and Bowditch. The correction, in finding the time of perihelion passage, depending on the true anomalies, is taken from Table III. of Bowditch's appendix to the 3rd volume of Laplace.

I proceed to tabulate the results in a form adapted for the computation. The comet's path is supposed to be parabolic, partly for facility of computation, and partly, because computations for an unknown elliptic orbit give varying and altogether unsatisfactory results even in the most skilful hands. I believe that I have determined the ellipse in this case: but I shrink from the labour of computing it.

| Gh.Mn.time. | $\lambda$ | $\lambda'$ | $\lambda''$ | $\beta$ | $\beta'$ | $\beta''$ | $L$ | $L'$ | $L''$ | $R$       | $R'$                                                                                                   | $R''$ |
|-------------|-----------|------------|-------------|---------|----------|-----------|-----|------|-------|-----------|--------------------------------------------------------------------------------------------------------|-------|
|             | °         | '          | "           | °       | '        | "         | °   | '    | "     |           |                                                                                                        |       |
| July 5 3 12 | 133       | 34         | 0           | 55      | 16       | 15        | 283 | 29   | 15    | 0.0072256 | $\left. \begin{array}{l} \frac{t'}{t} = \frac{5}{5} = 1. \\ T = 10 \text{ days.} \end{array} \right\}$ |       |
| 10 3 12     | 162       | 50         | 25          | 61      | 43       | 55        | 288 | 16   | 11    | 0.0071663 |                                                                                                        |       |
| 15 3 12     | 177       | 52         | 42          | 62      | 5        | 32        | 293 | 1    | 45    | 0.0070449 |                                                                                                        |       |

$$\text{Let } \frac{\delta'}{\delta} = M : \text{ then, if we make } \frac{\tan \beta'}{\sin (L' - \lambda)} = m,$$

$$M \text{ may be found by the formula, } M = \frac{\tan \beta - m \sin (L' - \lambda)}{m \sin (L' - \lambda') - \tan \beta'} \times \frac{t'}{t}$$

$$\begin{aligned} & \text{1. To find } m \\ & \frac{\tan \beta'}{\sin L' - \lambda} = 0.269166 = (61' \ 43' \ 55') \\ & m = \frac{9.911067}{(125 \ 25 \ 46)} \end{aligned}$$

$$\therefore m = 0.358099$$

$$\begin{aligned} & \text{2. To find } M \\ & \tan \beta = 0.159149 \quad \text{Nat No.} = 1.442614 \end{aligned}$$

$$m = 0.358099$$

$$\sin (L' - \lambda) = 9.6307127$$

$$9.9888417 \text{ Nat No.} = .974634$$

$$\text{Log of Numr.} = 9.6702273 = .467980$$

For denominator.

$$\begin{aligned}
 m &= 0.358099 \\
 \sin L' - \lambda' &= 9.9718945 \\
 &\hline
 &0.3299935 \text{ Nat no. } 2.137935 \\
 &\hline
 \text{tang. } \beta'' &= 0.2760130 \text{ Nat no. } 1.888048 \\
 &\hline
 \text{Denr.} & .249887 \\
 \text{Numr.} &= .467980 \text{ Log } 9.6702273 \\
 \text{Denr.} &= .249887 \text{ Log } 9.3977436 \\
 &\hline
 \text{Diff} &= 0.2724837 \\
 \text{Log } \frac{t'}{t} &= 0.0000000 \\
 &\hline
 \therefore M &= 0.2724837 \\
 &\text{and} \\
 M^2 &= 0.5449674
 \end{aligned}$$

This may be checked by the formula

$$M = \frac{\text{tang. } \beta \sin L' - \lambda' - \text{tang } \beta' \sin L' - \lambda}{\text{tang. } \beta' \sin L' - \lambda'' - \text{tang } \beta' \sin L' - \lambda'} \times \frac{t'}{t}$$

Having thus found  $M$  we proceed to find the values of  $r^2$ ,  $r'^2$  and  $c^2$ . The formulæ are

$$\begin{aligned}
 r^2 &= R^2 + \text{Sec}^2 \beta \delta^2 + 2 \delta R \cos L - \lambda \\
 r'^2 &= R'^2 + \text{Sec}^2 \beta'' M^2 \delta^2 + 2 \delta R'' M \cos L'' - \lambda''
 \end{aligned}$$

Leaving  $\delta$  to be afterwards determined, we find—

| For $r^2$                                                        | Nat No.               | For $r'^2$                           | Nat No.    |
|------------------------------------------------------------------|-----------------------|--------------------------------------|------------|
| $\text{Sec}^2 \beta = 0.488712$                                  | $= 3.081145 \delta^2$ | $\text{Sec}^2 \beta'' = 0.6594160$   |            |
| $2 = 0.3010300$                                                  |                       | $M^2 = 0.5449674$                    |            |
| $R = 0.0072256$                                                  |                       | $1.2043834 =$                        | $16.00970$ |
| $\cos L - \lambda = 9.9371835 -$                                 |                       | $2 = 0.3010300$                      |            |
| $- 0.2454391 = 1.759720 \delta -$                                |                       | $R'' = 0.0070449$                    |            |
| $R^2 = 0.0144512 = 1.033835$                                     |                       | $M = 0.2724837$                      |            |
|                                                                  |                       | $\cos L'' - \lambda'' = 9.6284050 -$ |            |
|                                                                  |                       | $- 0.2089636 = - 1.6179442$          |            |
|                                                                  |                       | $R'^2 = 0.0140898 =$                 | $1.032975$ |
| $r^2 = 1.033835 + 3.0811450 \delta^2 - 1.7597200 \delta$         |                       |                                      |            |
| $r'^2 = 1.032975 + 16.0097000 \delta^2 - 1.6179442 \delta$       |                       |                                      |            |
| $r^2 + r'^2 = 2.066810 + 19.0908450 \delta^2 - 3.3776642 \delta$ |                       |                                      |            |

The formula for  $c^2$  is

$$\begin{aligned}
 c^2 &= r^2 + r'^2 - 2\delta^2 (\cos \lambda'' - \lambda + \text{tang } \beta \text{ tang } \beta') M - 2\delta R M \\
 &\quad \cos L - \lambda'' - 2\delta R'' \cos L'' - \lambda - 2 R R'' \cos L'' - L.
 \end{aligned}$$

$$\begin{aligned} 2 &= 0.3010300 \\ R &= 0.0072256 \\ R'' &= 0.0070449 \\ \text{Cos } L'' - L &= 9.9939490 \end{aligned}$$

$$\begin{aligned} &0.3092495 \\ \text{Nat No. } 2.0382130 \end{aligned}$$

$$\text{Cos } \lambda'' - \lambda = 9.854640 = .715550$$

$$\begin{aligned} \text{tang } \beta &= 0.159149 \\ \text{tang } \beta'' &= 0.276013 \end{aligned}$$

$$0.435162 = 2.723717$$

$$\text{Log} = 0.5364658 = 3.439267$$

$$\begin{aligned} 2 &= 0.3010300 \\ M &= 0.2724837 \end{aligned}$$

$$\begin{aligned} &1.1099795 \\ \text{Nat No. } 12.8818872 \delta^2 \end{aligned}$$

$$\begin{aligned} 2 &= 0.3010300 \\ M &= 0.2724837 \\ R &= 0.0072256 \\ \text{Cos } L - \lambda'' &= 9.4298720 - \end{aligned}$$

$$\begin{aligned} &0.0106113 - \\ \text{Nat No. } - 1.0247343 (1) \end{aligned}$$

$$\begin{aligned} 2 &= 0.3010300 \\ R'' &= 0.0070449 \\ \text{Cos } L'' - \lambda &= 1.9714841 - \end{aligned}$$

$$\begin{aligned} &- 0.2795590 \\ \text{Nat No. } &= - 1.9035270 (2) \\ \text{Nat No. } &= - 1.0247343 (1) \end{aligned}$$

$$- 2.9282613 \delta$$

Hence  $c^2 =$

$$r^2 + r'^2 = 2.066810 + 19.0908450 \delta^2 - 3.3776642 \delta$$

$$\text{Remr.} = 2.038213 + 12.8818872 \delta^2 - 2.9282613 \delta$$

$$\therefore c^2 = 0.028597 + 6.2089578 \delta^2 - 0.4494029 \delta$$

We have now values of  $r^2$ ,  $r'^2$  and  $c^2$  in terms of the unknown quantity  $\delta$ , viz.

$$r^2 = 1.033835 + 3.0811450 \delta^2 - 1.7597200 \delta$$

$$r'^2 = 1.032975 + 16.0097000 \delta^2 - 1.6179442 \delta$$

$$c^2 = 0.028597 + 6.2089578 \delta^2 - 0.4494029 \delta$$

To find  $\delta$ , we have the formula  $6\mu T = (r + r' + c)^{\frac{3}{2}} - (r + r' - c)^{\frac{3}{2}}$  where  $T$  is the time between the 1st and 3rd observations, and  $6\mu$  is a constant, of which the logarithm is 9.0137302.

It is evident that  $\delta$  can only be found by successive approximations, and by a very tedious and laborious process. Table II. of Bowditch gives the corresponding times to any values of  $r^2 + r'^2$ , and  $c^2$ ; or more nearly to  $r + r'$  found at the head of the column and  $c$  at the side.

If we suppose  $\delta$  to be 1, then roughly

$$r^2 + r'^2 = 2.0668$$

$$+ 19.0908$$

$$\hline 21.1576$$

$$- 3.3776$$

$$\hline 18.7800$$

$$c^2 = 0.0286$$

$$+ 6.2089$$

$$\hline 6.2375$$

$$- .4194$$

$$\hline 5.7881$$

But  $c^2$  is never likely to exceed 1, in the parabolic orbit visible from the earth, and therefore this value of  $\delta$  is rejected.

Supposing  $\delta$  to be  $\frac{1}{8}$  and  $\delta^2 = \frac{1}{64}$ , then  $T = 11$  days nearly. Tab. II.

————  $\frac{1}{9}$  and  $\delta^2 = \frac{1}{81}$ , —  $T = 9.76$  nearly.

————  $\frac{2}{17}$  and  $\delta^2 = \frac{4}{289}$ , —  $T = 10.19$ .

Try  $\frac{2}{17} = .1176 = \delta \therefore \log$  of  $\delta = 9.0704073$  and  $\log$  of  $\delta^2 = 8.1408146$ .

| $r^2$                                      | $r'^2$                      | $c^2$                                   |
|--------------------------------------------|-----------------------------|-----------------------------------------|
| Sec <sup>2</sup> $\beta$ 0.488712          | 1.2043834                   | 0.7930186                               |
| Log $\delta^2$ 8.1408146                   | 8.1408146                   | 8.1408146                               |
| 8.6295266 = .04261149 $\delta^2$           | 9.3451980 = .2214104        | 8.9338332 = .08586838                   |
| 0.2454391                                  | 0.2089636                   | 9.6526360                               |
| 9.0704073 Log $\delta$                     | 9.0704073                   | 9.0704073                               |
| 9.3158464 = .2069410 $\delta$              | 9.2793709 = .19027020       | 8.7230433 = .05284978                   |
| 1.033835 R <sup>2</sup> Nat No.            | 1.032975                    | .0285970                                |
| .0426115 $\delta^2$ Nat No.                | .2214104                    | .08586838                               |
| 1.0764465                                  | 1.2543854                   | .11446538                               |
| .2069410 $\delta$ Nat No.                  | .1902702                    | .05284978                               |
| .8695055 = $r^2$                           | 1.0641152 = $r'^2$          | .06161560 = $c^2$                       |
| 2) 9.9392723 = log $r^2$                   | 2) 0.0269478                | 2) 8.7896906 = log $c^2$                |
| 9.9696361 = log $r$                        | 0.0134739                   | Log of $c$ 9.3948453                    |
| $\therefore r = .9324727$                  | $\therefore r' = 1.0315113$ | $\therefore c = .2482249$               |
| $r' = 1.0315113$                           | $r = .9324727$              |                                         |
| $r + r' 1.9639840$                         | 1.9639840                   | $(r + r' + c)^{\frac{3}{2}} = 3.290329$ |
| $c = .2482249$                             | $c = .2482249$              | $(r + r' - c)^{\frac{3}{2}} = 2.247422$ |
| $r + r' + c = 2.2122089$                   | $r + r' - c = 1.7157591$    | 0.0182430 = 1.042907                    |
| Log 0.3448262                              | Log 0.2344564               | 9.0137302 = $6\mu$                      |
| 3                                          | 3                           |                                         |
| 2) 1.0344786                               | 2) 0.7033692                | 1.0045128 = $T_1 = 10.10445$            |
|                                            |                             | $T = 10.$                               |
| log $(r + r' + c)^{\frac{3}{2}}$ 0.5172393 | 0.3516846                   | Error + 0.10445 days                    |
| Nat No. = 3.290329                         | Nat No. 2.247422            |                                         |

Thus it appears that .1176 is considerably too much; and we must make a 2nd supposition, which, from having no precise data for proportioning, must be somewhat of a leap in the dark. Let us suppose  $\delta = .1160$ : then the whole computation for the 1st supposition must be repeated for the 2nd and every successive approximation: a tedious and most fatiguing process. We shall tabulate only the results; observing that after the 2nd approximation, we can proportion for the following, and thus slowly but surely arrive at an accurate value of  $\delta$ .

|                              |                        |                    |
|------------------------------|------------------------|--------------------|
| 1st approx. $\delta = .1176$ | gives $T_1 = 10.10445$ | Error $+ 0d.10445$ |
| 2nd ———— $.1160$             | — $T_2 = 9.9676$       | — — $0.032$        |
| 3rd ———— $.11639$            | — $T_3 = 10.00325$     | — $+ 0.00325$      |
| 4th ———— $.11635$            | — $T_4 = 9.99964$      | — — $0.00035$      |

comparing the last 2, we find the difference of the natural numbers .11639 and .11635 to be 4, and the sum of the errors 360:

$$\therefore 360 : 35 = 4 : 04 \text{ nearly,}$$

or  $\delta = .116354$  of which the log is 9.0657813;

$$\text{and } M = 0.2724837$$

$$\therefore \text{Log } \delta'' = 9.3382650; \text{ for } \delta'' = M \delta.$$

In like manner we find  $\text{Log } r = 9.9699588$

$$\text{and } \text{Log } r'' = 0.0129150$$

This last value of  $\delta$  will give a time, which will not differ from  $T$  more than one or two seconds.

We are now prepared for the direct computation of the comet's elements.

1. To find the heliocentric latitudes  $b, b'$ .

$$\text{The formulæ are } \sin b = \frac{\delta \tan \beta}{r} \text{ and } \sin b'' = \frac{\delta'' \tan \beta''}{r''}$$

$$\begin{array}{l} \text{Log of } \delta = 9.0657813 \\ \tan \beta = 55^\circ 16' 15'' = 0.1591490 \end{array}$$

$$\begin{array}{l} \text{Log of } \delta'' = 9.3382650 \\ \tan \beta'' = 62^\circ 5' 32'' = 0.2760130 \end{array}$$

$$\begin{array}{r} 9.2249303 \\ \text{Log } r = 9.9699588 \end{array}$$

$$\begin{array}{r} 9.6142780 \\ \text{Log } r'' = 0.0129150 \end{array}$$

$$\begin{array}{l} \sin b = 9.2549715 \\ \cos b = 9.9928580 \\ \tan b = 9.2621135 \end{array}$$

$$\begin{array}{l} \sin b'' = 9.6013630 \\ \cos b'' = 9.9622722 \\ \tan b'' = 9.6390907 \end{array}$$

$$\begin{array}{l} \therefore b = 10^\circ 21' 45'' \text{ N. lat} \\ \text{and } b'' = 23^\circ 32' 17'' \end{array} \left. \vphantom{\begin{array}{l} \therefore b = 10^\circ 21' 45'' \text{ N. lat} \\ \text{and } b'' = 23^\circ 32' 17'' \end{array}} \right\} \text{Heliocentric latitudes.}$$

$$b + b'' = 33^\circ 54' 2''$$

$$b'' - b = 13^\circ 10' 32''$$

2. To find the heliocentric longitudes  $l, l''$ .

$$\sin L - l = \frac{\delta \sin L - \lambda}{r \cos b} \text{ and } \sin L'' - l'' = \frac{\delta'' \sin L'' - \lambda''}{r'' \cos b''}$$

$$\begin{array}{l} \delta = 9.0657813 \\ 149^\circ 55' 15 \sin L - \lambda = 9.7000077 \end{array}$$

$$\begin{array}{l} r = 9.9692588 \\ \cos b = 9.9928580 \end{array}$$

$$\begin{array}{r} 8.7657890 \\ 9.9621168 \end{array}$$

$$9.9621168$$

$$\sin L - l = 8.8036722$$



$$\begin{array}{r} \therefore L - l = 3^{\circ} \ 38' \ 54'' \\ \text{but } L = 283^{\circ} \ 29' \ 15'' \end{array}$$

$$\therefore l = 279^{\circ} \ 50' \ 21'' \text{ Again}$$

$$\begin{array}{r} \delta'' = 9.3382650 \\ \sin L'' - \lambda'' = 9.9567378 \end{array} \quad \begin{array}{r} r'' = 0.0129150 \\ \cos b'' = 9.9622722 \end{array}$$

$$\begin{array}{r} 9.2950028 \\ 9.9751872 \end{array}$$

$$9.3198156 = \sin L'' - l''$$

$$\begin{array}{r} \therefore L'' - l'' = 12^{\circ} \ 3' \ 16'' \\ \text{But } L'' = 293^{\circ} \ 1' \ 45'' \end{array}$$

$$\therefore l'' = 280^{\circ} \ 58' \ 29''.$$

Therefore, because the heliocentric longitudes are increasing, the motion is DIRECT.

$$\begin{array}{r} l'' = 280^{\circ} \ 58' \ 29'' \\ l = 279^{\circ} \ 50' \ 21'' \end{array}$$

$$\frac{1}{2} \text{ the sum, or } \frac{l'' + l}{2} = 280^{\circ} \ 24' \ 25''$$

$$\frac{1}{2} \text{ the diff., or } \frac{l'' - l}{2} = 0^{\circ} \ 34' \ 4''$$

$$3. \text{ Find the node. } \text{Tang} \left( \frac{l + l''}{2} - \Omega \right) = \frac{\sin b + b''}{\sin b'' - b} \text{tang} \frac{l'' - l}{2}$$

$$\sin b + b'' = 33^{\circ} \ 54' \ 2'' = 9.7464420$$

$$\sin b'' - b = 13^{\circ} \ 10' \ 32'' = 9.3578119$$

$$0.3886301$$

$$\text{tang} \frac{l'' - l}{2} = 7.9960700$$

$$\text{tang} \left( \frac{l'' + l}{2} - \Omega \right) = 8.3847001$$

$$\therefore \frac{l'' + l}{2} - \Omega = 1^{\circ} \ 23' \ 21''$$

$$\text{but } \frac{l + l''}{2} = 280^{\circ} \ 24' \ 25''$$

$$\therefore \text{Ascending Node} = 279^{\circ} \ 1' \ 4''$$

$$4. \text{ To find the inclination } (\phi). \text{Tang } \phi = \frac{\text{tang } b}{\sin l - \Omega} = \frac{\text{tang } b''}{\sin l'' - \Omega}$$

$$\begin{array}{r} l = 279^{\circ} \ 50' \ 21'' \\ \Omega = 279^{\circ} \ 1' \ 4'' \end{array}$$

$$\begin{array}{r} l'' = 280^{\circ} \ 58' \ 29'' \\ 279^{\circ} \ 1' \ 4'' \end{array}$$

$$l - \Omega = 0^{\circ} \ 49' \ 17''$$

$$l'' - \Omega = 1^{\circ} \ 57' \ 25''$$

|                                                    |                                        |           |
|----------------------------------------------------|----------------------------------------|-----------|
| $\text{tang } b = 9.2621135$                       | $\text{tang } b'' = 9.6390907$         | check     |
| $\text{Sin } l - \Omega = 8.1564113$               | $\text{Sin } l'' - \Omega = 8.5333714$ |           |
| <hr/>                                              |                                        |           |
| $\text{tang } \phi = 1.1057022$                    |                                        | 1.1057193 |
| $\therefore \text{Inclination} = 85^\circ 31' 3''$ |                                        |           |

5. To find the arguments of latitude  $u, u''$ .

|                                               |                                         |
|-----------------------------------------------|-----------------------------------------|
| $\cos u = \cos b \cos l - \Omega$             | $\cos u'' = \cos b'' \cos l'' - \Omega$ |
| $\cos b = 9.9928580$                          | $\cos b'' = 9.9622722$                  |
| $\cos l - \Omega = 9.9999554$                 | $\cos l'' - \Omega = 9.9997466$         |
| <hr/>                                         |                                         |
| $\cos u = 9.9928134$                          | $\cos u'' = 9.9620183$                  |
| $u = 10^\circ 23' 41''$                       | $u'' = 23^\circ 36' 53''$               |
| <hr/>                                         |                                         |
| $\frac{u'' - u}{2} = 9.9971035$               | $u'' - u = 13^\circ 13' 12''$           |
| <hr/>                                         |                                         |
| $\text{cosec } \frac{u'' - u}{2} = 0.9388850$ | $\frac{u'' - u}{2} = 6^\circ 36' 36''$  |

6. To find the true anomalies  $\theta, \theta''$ .

$$\text{tang } \frac{\theta}{2} = \text{cosec } \frac{u'' - u}{2} \left( \cos \frac{u'' - u}{2} - \sqrt{\frac{r}{r''}} \right)$$

$$\cos \frac{u'' - u}{2} = 9.9971035 \text{ Nat No. } .993353$$

$$r = 9.9699588$$

$$r'' = 0.0129150$$

$$\frac{r}{r''} = 2) 9.9570438$$

$$\text{Log } \sqrt{\frac{r}{r''}} = 9.9785219 \text{ Nat No. } .951748$$

$$\text{Log} = 8.6191455 = .041605$$

$$\text{cosec } \frac{u'' - u}{2} = 0.9388850$$

$$\text{tang } \frac{\theta}{2} = 9.5580305 \therefore \frac{1}{2} \theta = 19^\circ 52' 18''$$

|                                         |                               |
|-----------------------------------------|-------------------------------|
| $\cos \frac{1}{2} \theta = 9.9733386$   | $\theta = 39^\circ 44' 36''$  |
| $\cos \frac{1}{2} \theta'' = 9.9518604$ | $u'' - u = 13^\circ 13' 12''$ |

$$\theta'' = 52^\circ 57' 48''$$

$$\frac{1}{2} \theta'' = 26^\circ 28' 54''$$

7. To find  $\pi$  = longitude of perihelion.

$$\pi = \theta - u \pm \Omega = \theta'' - u'' \pm \Omega$$

|                              |                                |
|------------------------------|--------------------------------|
| $\theta = 39^\circ 44' 36''$ | $\theta'' = 52^\circ 57' 48''$ |
| $u = 10^\circ 23' 41''$      | $u'' = 23^\circ 36' 53''$      |
| <hr/>                        |                                |
| $29^\circ 20' 55''$          | $29^\circ 20' 55''$            |
| $\Omega = 279^\circ 1' 4''$  |                                |
| <hr/>                        |                                |
| $\pi = 249^\circ 40' 9''$    | $= \text{long of perihelion.}$ |

8. To find  $D$  = perihelion distance.

$$D = \cos^2 \frac{\theta}{2} \times r = \cos^2 \frac{\theta''}{2} \times r''.$$

|                                                                                                                                                                                                                                   |                                                                                                                                                                                                             |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| $\cos \frac{1}{2} \theta = 9.9733386$<br><hr style="width: 100%;"/> $\cos^2 \frac{\theta}{2} = 9.9466772$<br><hr style="width: 100%;"/> $r = 9.9699588$<br><hr style="width: 100%;"/> $D = 9.9166360$<br>$\therefore D = .825346$ | $\cos \frac{1}{2} \theta'' = 9.9518604$<br><hr style="width: 100%;"/> $\cos^2 \frac{\theta''}{2} = 9.9037208$<br><hr style="width: 100%;"/> $r'' = 0.0129150$<br><hr style="width: 100%;"/> $D = 9.9166358$ |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

9. Lastly to find the time of passing the perihelion.

$$P = D^{\frac{3}{2}} \times \theta \text{ (Tab. III. Bowditch). } P'' = D^{\frac{3}{2}} \times \theta'' \text{ (Tab. III. B.)}$$

|                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                    |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| $D = 9.916636$<br><hr style="width: 100%;"/> $2) 9.749908$<br><hr style="width: 100%;"/> $D^{\frac{3}{2}} = 9.874954$<br>$\theta \text{ Tab. III. } 1.491470$<br><hr style="width: 100%;"/> $1.366424$<br>$23d. 250$<br>$\text{July } 5d. 133$<br><hr style="width: 100%;"/> $\text{June } 11d. 883$ | $D^{\frac{3}{2}} = 9.874954$<br>$1.646842$<br><hr style="width: 100%;"/> $1.521796$<br>$33d. 250$<br>$\text{July } 15d. 133$<br><hr style="width: 100%;"/> $\text{June } 11d. 883$ |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

Greenwich Mn. time of perihelion passage, June 11*d.* 21*h.* 11*m.* 31*s.*

The elements of the comet by this set of observations are

|                       |                                   | From other sets.                                               |
|-----------------------|-----------------------------------|----------------------------------------------------------------|
| Asc. Node, .....      | 279° 1' 4"                        | 278° 59' 32"                                                   |
| Inclination, .....    | 85° 31' 3"                        |                                                                |
| Perihel. Long., ..... | 249° 40' 9"                       |                                                                |
| — Dist., .....        | .825346.                          |                                                                |
| — Passage, .....      | June 11 <i>d.</i> 21 <i>h.</i> 2. | June 11 <i>d.</i> 23 <i>h.</i> — June 12 <i>d.</i> 3 <i>h.</i> |
| Motion, .....         | Direct.                           |                                                                |

The celebrated astronomer, Monsr. Plantamour of Geneva, gives the following elements, which I found in the London Review of July 27<sup>th</sup>.

|                    |                                             |                                           |
|--------------------|---------------------------------------------|-------------------------------------------|
| Asc. Node, .....   | 278° 59'                                    |                                           |
| Inclination, ..... | Omitted.                                    | Hind and Pape give 85° 37'                |
| P. Long., .....    | 249° 41'                                    | and 85° 38'.                              |
| — Dist., .....     | .82424.                                     |                                           |
| — Pass., .....     | June 11 <i>d.</i> 21 <i>h.</i> 36 <i>m.</i> | Hind gives June, 12 <i>d.</i> 4 <i>h.</i> |
| Motion, .....      | Direct.                                     |                                           |

We may find the comet's distance from the earth at any time, when we know  $\delta$ , by the formula, *true dist.* = *curtate dist. cos helioc. lat.*

Thus on the 5th  $\delta = 9.0657813$

$\cos b = 9.9928580$

---

$9.0729233 \therefore \text{true distance} = .118283$

and  $.118283 \times 95,000,000 = 11,237,000$  miles, which sufficiently explains the length of the tail, and the rapidity of the motion.

I have, in another place, expressed an opinion, which I still retain, though it has not been noticed (up to July 27th,) by any European astronomer, that the comet is identical with Mechain's Comet of 1781: and that therefore its path is an ellipse, with a period of about 80 years. Mechain's Elements for the comet of 1781, are

|                |         |
|----------------|---------|
| Node, .....    | 263°    |
| Inclin.,.....  | 81°     |
| P. Long.,..... | 239°:   |
| — Dist., ..... | .775    |
| — Pass., ..... | July 7. |
| Motion, .....  | Direct. |

Its near approach to the earth, and the great difficulty of computing the elements of a body, with an orbit nearly perpendicular to the ecliptic, will amply account for the discrepancies. There are indeed very considerable variations in the determinations of some astronomers at home, chiefly arising from an over anxiety to rush into print. There can be no doubt that the comet seen in the southern hemisphere in June was our comet. When seen at sea, it was rushing northwards with prodigious velocity, after passing its perihelion on the 12th of June. It did not ascend to the north of the ecliptic until the 29th or 30th.\*

I suspect too that it is the same comet, which was seen in Europe and America in the end of April and May, of which Mr. Hind gives the following very rough elements:

|                |            |
|----------------|------------|
| Node, .....    | 31°        |
| Inclin.,.....  | 79° or 80° |
| P. Long.,..... | 243        |
| — Dist., ..... | .92        |

\* If the gentleman who saw the comet had but measured its distance from two stars, his observations would have been very valuable.

— Pass., ..... June 2.

Motion, ..... Direct.

It was then approaching its perihelion slowly.

*Note.*—The foregoing computation was finished July 19th, and sent to the *Friend of India* a few days after.

W. S. MACKAY.

*Chinsurah,* }  
19th September, 1861. }



*Discovery of the New Planet "ASIA."—By N. R. POGSON, Esq.,  
F. R. A. S., Government Astronomer, Madras.*

The notice of a discovery made nearly five months since, will, I fear, be deemed by many as almost too tardy to merit publication in the Transactions of the Asiatic Society. Having been requested, however, by His Excellency Sir W. Denison, to communicate the circumstances of the discovery, I have much pleasure in doing so, and by way of amends for the lateness of the intelligence, am enabled to add the elements of the planet's elliptical orbit, calculated from observations made with the equatorial of the Madras Observatory.

For many years past, when attached to the Radcliffe Observatory at Oxford, it has been my practice to devote such leisure time as my official duties permitted, to the pursuit of more entertaining branches of Astronomical science than legitimately belong to the steady routine work of a public Observatory. Amongst other objects, one which has rewarded me pretty fairly was the construction of more accurate charts of certain portions of the heavens than had been yet attempted. With a considerable amount of pleasing toil, six charts were completed in about as many years; and by subjecting the celestial spaces thus mapped to systematic scrutiny, they have realized not less than five new planets, and a dozen new variable Stars. The immediate object of this communication was the last of these discoveries, and being the first planet detected in this quarter of the globe was named "ASIA," strictly in accordance with the usual asteroidal nomenclature, which has hitherto been confined exclusively to the Roman and Grecian mythology; and peculiarly appropriate



to the occasion. Amphitrite, Europa, Doris and others of the Oceanides have been previously adopted, and I am happy to say the name Asia has been well received by my English and European astronomical colleagues. The planet was first seen on the 16th of April, as a star of about the 12th magnitude—the faintest discernible with a telescope  $3\frac{1}{2}$  inches in aperture. Its planetary nature was proved the following evening, by micrometric observations, and the annexed series of positions was obtained during the following twenty-five days.

| Madras Mean Time. |    |           |           | Right Ascension. |           |           | South Declination. |       |    | Comparisons. | Observer. |   |
|-------------------|----|-----------|-----------|------------------|-----------|-----------|--------------------|-------|----|--------------|-----------|---|
|                   |    | <i>h.</i> | <i>m.</i> | <i>s.</i>        | <i>h.</i> | <i>m.</i> | <i>s.</i>          | °     | '  | "            |           |   |
| April             | 17 | 12        | 53        | 40               | 15        | 51        | 14.76              | ..... |    |              | 5         | P |
| "                 | "  | 14        | 7         | 37               | 15        | 51        | 13.56              | 16    | 6  | 22.9         | 10        | " |
| "                 | 18 | 11        | 50        | 39               | 15        | 50        | 50.72              | 16    | 1  | 12.7         | 12        | " |
| "                 | 19 | 13        | 49        | 27               | 15        | 50        | 20.72              | 15    | 55 | 7.0          | 9         | " |
| "                 | 20 | 11        | 46        | 44               | 15        | 49        | 53.93              | 15    | 49 | 50.1         | 8         | " |
| "                 | "  | 13        | 20        | 12               | 15        | 49        | 51.84              | 15    | 49 | 26.6         | 12        | R |
| "                 | 21 | 11        | 59        | 5                | 15        | 49        | 22.97              | 15    | 43 | 55.3         | 13        | P |
| "                 | 23 | 12        | 13        | 6                | 15        | 48        | 15.72              | 15    | 31 | 57.3         | 11        | " |
| "                 | "  | 13        | 31        | 56               | 15        | 48        | 14.04              | 15    | 31 | 31.4         | 10        | R |
| "                 | 28 | 10        | 31        | 4                | 15        | 45        | 6.30               | 15    | 0  | 51.8         | 8         | " |
| "                 | "  | 11        | 57        | 33               | 15        | 45        | 3.26               | 15    | 0  | 30.4         | 12        | P |
| "                 | 29 | 9         | 55        | 49               | 15        | 44        | 24.56              | 14    | 54 | 32.8         | 8         | R |
| "                 | "  | 11        | 58        | 23               | 15        | 44        | 19.78              | 14    | 54 | 5.5          | 9         | P |
| "                 | 30 | 10        | 12        | 56               | 15        | 43        | 39.05              | 14    | 47 | 49.7         | 8         | R |
| May               | 1  | 9         | 46        | 11               | 15        | 42        | 54.97              | 14    | 41 | 16.6         | 8         | " |
| "                 | "  | 13        | 0         | 13               | 15        | 42        | 48.11              | 14    | 40 | 18.4         | 12        | P |
| "                 | 2  | 11        | 34        | 17               | 15        | 42        | 4.89               | 14    | 34 | 6.8          | 9         | R |
| "                 | "  | 13        | 3         | 18               | 15        | 42        | 1.79               | 14    | 33 | 42.4         | 10        | P |
| "                 | 3  | 11        | 12        | 33               | 15        | 41        | 17.88              | 14    | 27 | 31.8         | 12        | " |
| "                 | "  | 13        | 4         | 26               | 15        | 41        | 13.97              | 14    | 26 | 56.3         | 12        | R |
| "                 | 11 | 13        | 16        | 47               | 15        | 34        | 17.61              | 13    | 32 | 3.8          | 14        | P |
| "                 | 12 | 10        | 15        | 45               | 15        | 33        | 30.18              | 13    | 25 | 58.1         | 18        | " |

The magnitude or brilliancy was carefully noted on each suitable occasion, agreeably to the standard photometric scale adopted in the Supplement of the Nautical Almanac, and was as follows:—

|          |       |      |       |       |      |
|----------|-------|------|-------|-------|------|
| April 17 | ..... | 12.0 | May 1 | ..... | 11.0 |
| " 18     | ..... | 11.7 | " 2   | ..... | 11.0 |
| " 19     | ..... | 11.2 | " 3   | ..... | 10.8 |
| " 21     | ..... | 11.5 | " 11  | ..... | 10.6 |
| " 29     | ..... | 11.0 | " 12  | ..... | 11.0 |

The initials P and R indicate respectively myself and my fourth native assistant C. Ragoonatha Chary, to whose skill and attachment to science I have much pleasure in rendering well merited testimony.

Owing to cloudy weather the planet could not be recovered after May 12th without a knowledge of its orbital elements, and other duties prevented me from completing the calculations required until the fine weather had broken up. From the places of April 17th, May 1st and 12th, I find the following elliptical elements :—

Epoch, ..... 1861 May, 12.20472 Greenwich Mean  
Time.

|                      |      |    |      |                         |
|----------------------|------|----|------|-------------------------|
| Mean Anomaly,.....   | 307° | 16 | 52.0 | } Mean Equinox, Jan. 1. |
| Perihelion, ..... .. | 304  | 4  | 42.0 |                         |
| Ascending Node, ...  | 202  | 32 | 21.9 |                         |
| Inclination, .....   | 5    | 57 | 17.9 |                         |
| Excentricity, .....  | 10   | 3  | 10.0 |                         |

Daily Motion in Orbit, ... 947".530

Log. Mean Distance,..... 0.382276

As a verification of the accuracy of which, the residual error, or difference between computation and observation for the middle observation, is only 0".4 in latitude; while the agreement in longitude is perfect. It appears also that the mean brightness in opposition is 11.6 magnitude, and that the period of revolution is 1368 days, or about three and three quarter years.

*Madras Observatory, September 21st, 1861.*

PROCEEDINGS  
OF THE  
ASIATIC SOCIETY OF BENGAL,  
FOR JUNE, 1861.

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THE monthly general meeting of the Asiatic Society of Bengal was held on the 5th instant —

A. Grote, Esq., President, in the chair.

Presentations were received :—

1. From Lieut. Col. J. D. Graham, a pamphlet containing his demonstrations of a Lunar Tidal-wave in the North American Lakes.
2. From Baboo Rajendra Malika, specimens of a cassowary and a golden pheasant.
3. From Major G. G. Pearse, Segowlee, the head and horns of a wild buffalo.

The President exhibited a relic from Nimroud, kindly lent to him for that purpose by Lady Frere. It was a royal edict in the cuneiform character from the imperial record room of that city.

He further drew attention to a large fragment of the Dhurmsala Aerolite, which His Excellency Lord Canning had sent to the Society for inspection, and which was on the table before the meeting. This piece was intended for dispatch to England, but another smaller specimen was about to be presented by His Excellency to the Society's Museum.

A letter was read announcing the withdrawal of Lieut. W. G. Alexander from the Society.

The following gentlemen duly proposed at the last meeting were balloted for, and elected ordinary Members :—

J. D. Tremlett, Esq., C. S.

Maharajah Maun Singh, Bahadur.

His Excellency Sir W. Denison, K. C. B.

Captain L. Pelly, Bombay Army.

The following gentlemen were named for ballot at the next meeting :—

Oliver R. Crockett, Esq., proposed by Mr. H. F. Blanford, seconded by the President.

J. J. T. H. Asphar, Esq., proposed by Dr. E. Goodeve, seconded by Mr. Atkinson.

J. W. McCrindle, Esq., M. A., Principal, Doveton College, proposed by Dr. J. Fayrer, seconded by Mr. Atkinson.

The Council also proposed Dr. R. Gosche of Berlin, as a corresponding member.

The following Report of the Council was submitted for the approval of the Society.

“The Council beg to recommend to the Society that the Rev. K. M. Banerjea’s offer to edit for the *Bibl. Indica*, the *Nárada Pancha Rátra* be accepted. It will fill two *Fasciculi*, and is a valuable work as the great text Book of the *Bhágavata* view of the Pantheistic doctrine of the *Brahma Sutras*.

They also recommend that Pundit Ramnarain Vidyáratna’s offer be accepted to complete the edition of the *Vedánta Sutras*, as commenced by Dr. Roer, with Sankara’s commentary and Ananda’s glossary.”

The Report was adopted.

The Council also reported that they had appointed Colonel H. Yule, as a member of their body in the place of Major Sherwill, and announced that Mr. E. C. Bayley had been added to the Philological and Coin Committees.

Communications were received :—

1. From Baboo Radha Nauth Sikdar, abstracts of Meteorological observations taken at the Surveyor General’s office in October last.

2. From Mr. T. F. Peppe, Sub-Deputy Opium Agent at Burharwa, the following notes containing an account of the fall of an Aerolite on the borders of the Tirhoot district on the 12th ultimo.

*Burharwa, 27th May, 1861.*

“I have not yet succeeded in getting any pieces of the Aerolite which fell near Segowlee, indeed my attention was here diverted in another direction by news which I received of another having fallen on the borders of the district on the 12th instant, in fact on the very day I received your note.

"Its fall was accompanied by a loud report, as if several guns had simultaneously burst, and was succeeded by several successive peals of thunder; as this occurred about noon, when there was no cloud or appearance of a storm, it attracted universal attention. The report, if I may so call it, was distinctly heard here a distance of some 60 miles, and opinions differed as to whether it was thunder or the report of guns.

"As far as I can learn, three pieces fell and were only partially imbedded in the soil, one at a village called Bullooah on the west side of the Gunduck, and was of a round flat shape, this was broken up by the *ahiris*, who apprehended danger from its presence.

"Another fell at a village called Peeprassee, about 3 miles from the other, and from a fancied resemblance to a *Linga* this was immediately worshipped as *Siva* or *Mahadeo*. I have not yet satisfactorily ascertained what has become of this one, but believe that it is along with the only piece remaining of the one which was broken up, now with the Bettiah Rajah, to whom I have written to enquire.

"The other which fell near a bazar called Qutaha, in the district of Purownah on the Goruckpore side, is still in the place where it fell, and the Zemindar of the place, Ishuree Pershad Rai, has had a tent pitched over it, and appointed a Brahmin to perform the ceremonies, and immense numbers of people now go to do poojah to it as *Mahadeo*, so that there is no chance of getting it at present, I fear; but the Magistrate of Goruckpore would find little difficulty in securing it, after the novelty had subsided."

In his second letter, dated 2nd June, Mr. Peppe writes :

"Since writing you I have been able to secure two small pieces of the Aerolite of which I wrote you last week.

"I have since learned that four pieces had been found altogether, and that on reaching the ground, they were in every instance in a state of incandescence and emitting sparks precisely as iron at a white heat does.

"The two pieces which I mentioned as having fallen in the Goruckpore *elákah*, have, I have since ascertained, been sent for by the Magistrate of that district. I have written to my brother there to ascertain what became of them.

"The two pieces which I have, are bits of the pieces which fell on the Bettiah side at places about 2 miles apart, the nearest village



of any importance is 'Mudbunee,' which you will find on the map, it is on the other side of the Gunduck, i. e. the west."

3. From Major J. F. Tennant through Lieutenant-Colonel Thuillier, the following table shewing the central line and limits of annularity of the solar eclipse of July 7th, 1861.

# ANNULAR ECLIPSE OF THE SUN, JULY 7TH, 1861.

*Table shewing the limiting lines within which the phase is annular and also the line where it is central.*

| Times at Greenwich. | Greatest duration of annularity. | North Limit. |          | Central Line. |          | South Limit. |          |
|---------------------|----------------------------------|--------------|----------|---------------|----------|--------------|----------|
|                     |                                  | Latitude.    | Long. E. | Latitude.     | Long. E. | Latitude.    | Long. E. |
| Sun rising at place | 67.4                             | 6° 12.6 S    | 85° 58.5 | 0° 29.3 S     | 86° 4.8  | 0° 45.5 S.   | 86° 11.9 |
| h. m.               |                                  |              |          |               |          |              |          |
| 12 22               | 59.8                             | 2 24.4 N.    | 92 27.6  | 2 6.9 N.      | 92 27.2  | 1 51.3 N.    | 92 31.3  |
| 12 23               | 56.6                             | 3 31.0 "     | 95 16.2  | 3 15.8 "      | 95 18.2  | 3 1.4 "      | 95 23.1  |
| 12 24               | 54.1                             | 4 19.3 "     | 97 21.1  | 4 5.0 "       | 97 24.2  | 3 50.5 "     | 97 26.4  |
| 12 25               | 52.7                             | 4 58.3 "     | 99 4.2   | 4 45.0 "      | 99 7.1   | 4 31.0 "     | 99 10.7  |
| 12 26               | 50.4                             | 5 34.4 "     | 100 38.9 | 5 20.6 "      | 100 37.8 | 5 8.4 "      | 100 46.4 |
| 12 27               | 48.9                             | 6 1.9 "      | 101 53.6 | 5 49.6 "      | 101 56.3 | 5 36.2 "     | 101 58.8 |
| 12 28               | 47.5                             | 6 30.9 "     | 103 6.3  | 6 16.6 "      | 103 10.6 | 6 5.0 "      | 103 13.3 |

"The first column gives the Greenwich mean times except in the first line where the time is local sunrise.

"The second column shows the interval between the formation of the annulus of light round the moon's limb, and its rupture on the Eclipse again becoming partial.

"The central line is that along which the apparent centres of the sun and moon will be seen to coincide at the middle of the Eclipse, and the time of coincidence is that in the first column at the place denoted by the corresponding Latitude and Longitude.

"The North limit is that line where at the greatest Eclipse the moon's limb will be seen to touch the sun's internally on the south side. At the South limit they will touch on the north side. The times and Geographical places correspond."

4. From the Secretary to the Government of India, Foreign Department, the following letter and memorandum regarding a Scientific expedition which it was proposed to despatch into the Trans-Himalayan districts of Chinese Tartary.

*From the Offg. Secy. to the Govt. of India,  
To the Secy. of the Asiatic Society of Bengal.*

*Dated Fort William, the 29th May, 1861.*

FOREIGN DEPT.

SIR,—It is in contemplation to procure permission from the Chinese authorities for the passage of a small scientific expedition into the little known territories of Chinese Tartary beyond our Himalayan frontier.

I am directed by His Excellency the Governor General in Council to communicate this information to the Asiatic Society of Bengal, and to invite the Society to afford such information and advice as may be likely to secure the greatest and most important advantages, both to science and to commerce, from the results of this expedition.

The expedition will probably be directed towards Ladák, the country north-east of Ladák, and that between Ladák and Lhassa.

A rough memorandum of the subjects upon which information is likely to prove useful is inclosed. It will probably be within the power of the Society to furnish the information thus sought, as well as further suggestions for the guidance of the expedition—all of which His Excellency the Governor General in Council will be glad to receive at as early a date as may be practicable.

I have the honor to be,

Sir,

Your most obedient Servant,

(Signed) E. C. BAYLEY,

*Offg. Secy. Govt. of India.*

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I. GEOGRAPHY AND TOPOGRAPHY.—Beyond the general information on these subjects which may be expected from the researches of the expedition, it is of importance that particular attention be paid to the trade routes, the courses of the rivers, the heights of the mountains and the direction of the mountain chains. A sketch of the present state of scientific knowledge in regard to the Geography and Topography of the Trans-Himalayan territories would naturally be very useful to the expedition. Attention might especially be directed to the identification of the traditional *Kailas* of the Hindus, and the measurement of its height. The Asiatic Society will doubtless be able to afford much information upon this point.

II. ETHNOLOGY.—There is reason to believe that the valleys on the N. E. face of the Himalayas and the different portions of the plateau beyond, are inhabited by races of very different descent, *e.g.*, the valleys lying on the left bank of our territories just beyond the borders of Kumaon or Bussahir are inhabited by a small tribe of very different appearance from other Bhootas; they are taller, fairer and with more prominent features, and are believed by themselves, and others of the inhabitants, to be of a totally different family from either the Bussahirees or the Tartar tribes, who inhabit the plateau beyond; attention should be paid to the physical characteristics of these various races, and any information as to their origin, migrations, dialects, the distinctive appellations of the tribes, and their sub-divisions, obtained from the traditions of the inhabitants, would be valuable. A sketch of what is already known in this respect would, if prepared by the Society, be of great use to the expedition.

III. HISTORY, ANTIQUITIES, AND RELIGION.—The expedition are not likely to obtain much *vivâ voce* information except as to the more recent history of the countries which they visit. Neither is it probable that they will meet with antiquarian remains of much value. Some of the monasteries of the larger towns, are, however, believed to be of old date, and many of them to possess libraries. It is not improbable that from these, MSS. of value may be obtainable, especially of the translations into Thibetan, of Sanscrit works on subjects relating to Buddhism or even MSS. of the original Sanscrit works themselves.

The Society might indicate the names of any works, either in Sanscrit or Thibetan, which it is of special importance to procure, but any works of ancient date, bearing on History, Religion, Philosophy or Travels, would unquestionably be desirable to obtain.

Inscriptions of value are not likely to be discovered, though the Thibetan pilgrims to shrines within the British territories frequently cover every rock in the neighbourhood with inscriptions containing religious invocations.

Any localities in which inscriptions of value are believed likely to exist might be pointed out to the expedition, and they might be instructed how to transfer impressions of any of apparent antiquity.

Collections of local traditions bearing upon the ancient religion

and the History of Thibet would, if sought from intelligent persons and carefully noted down, yield information of value.

No discoveries in Numismatics are, it is believed, to be expected, though it is believed that at one time the ancient coinage of Nipa circulated to some extent beyond the borders of that country.

So little is known, however, of this subject, and the currency of the Thibetan States has been always so limited, that beyond generally drawing the attention of the expedition to the subject, the Society will probably be able to offer them no assistance.

IV. ZOOLOGY—MAMMALIA.—The larger quadrupeds of the Trans-Himalayan plains are believed to be already in a great measure described. The Society might, however, indicate with advantage any points upon which fuller information is yet required. It is possible that some new varieties of Antelope and deer may be discovered by the expedition. Horns are occasionally brought by the Bhoota traders from the various fairs which do not seem to belong to varieties as yet identified as inhabiting the Trans-Himalayan plain.

Some discoveries may probably be looked for among the minor animals, such as the viverrine and similar races. Several varieties of these are believed to exist in the country to be visited by the expedition, the skins of some of which are said to be used as articles of trade.

There is a large flying squirrel of great beauty believed to be hitherto unnamed, but probably belonging to the genus *Terramus*, mutilated specimens of which have been occasionally brought from Kunawur, and similar localities. Good specimens of this are desiderata. When full grown, it measures nearly three feet across the extended fore-paws, and is especially distinguished by the exquisite softness and unusual length of the fur and of the tail. The general colour of the animal is a Chinchilla grey.

Aquatic animals may possibly exist in some of the larger lakes; and if so, they are probably still unknown to science.

REPTILES AND INSECTS.—It is probable from the nature of the country that few specimens of this class are likely to be made available by the researches of the expedition. Those, however, which may be discovered, are also likely to be worthy of notice, as little attention appears to have been paid hitherto to this portion of Natural History of the Trans-Himalayan regions. Specimens and information,



as to the habits of such reptiles and insects, therefore, as the expedition may be able to find are likely to be especially valuable.

FISH.—The inland lakes and rivers probably contain many fish of which little is known. Information and specimens of these will be valuable.

SHELLS AND CRUSTACEA.—The land and fresh water shells are also probably worthy of attention. The streams on the S. W. face of the Himalaya, occasionally contain a few rare Crustacea in their pools and holes.

V. ORNITHOLOGY.—The birds which the expedition may discover are not likely to be new, except perhaps some of the larger birds of prey.

But information of value is likely to be available to the expedition as to the habits and summer resorts of many migratory birds.

The Society may perhaps be able to direct the attention of the expedition to the points upon which information of the nature above described is of most value.

VI. GEOLOGY AND MINERALOGY.—The knowledge possessed by Mr. Medlicott in these branches of science will render the advice of the Society less necessary than in any others; but the Society may be in possession of facts of which Mr. Medlicott may not be aware, and which may be of value in determining the direction which his researches should take.

Information, especially as to the supposed locality of recent rocks said to exist upon the plateau of Thibet, would be valuable.

Fossils are frequently brought by the traders, and some of these may be in the Society's Museum. Lists of them and of the localities from which they are said to have been brought would be of much assistance.

An abstract of the discoveries of Col. and of Mr. John Strachey, Captain W. E. Hay, and others, of fossiliferous rocks in the Himalayan tracts within the British border would also be of use.

In a few places of the Himalayas (as in the summits and flanks of the Hungrung and neighbouring passes in Kunawur) are found isolated masses of a conglomerate, from its mineral character, apparently of an extremely recent age. On the Hungrung pass the shape of these masses would indicate that they are the remains of a deposit, the bulk of which has been swept away by denudation.



They rest there upon a limestone containing "turbinolio" and coralline fossils in considerable abundance.

Magnificent crystals of cyanide, staurotide, black tourmaline, augite and a variety of balas ruby have been procured from some of the granitic rocks which run within the Thibet border; probably further research would discover other minerals usually associated with these. Information as to the localities whence specimens of these and other minerals of the Himalayas have been obtained by the Society will be of use to the expedition.

The borax lakes and sulphur mines will form an important object of examination by the expedition; the Society would probably be able to give a sketch of the localities in which they are to be looked for, and other information as to the history of their working, &c.

VII. BOTANY.—It is probable that the more important portion of the Flora of the comparatively barren districts which the expedition will reach will not differ materially from that of the portion of the country Trans-Himalaya already explored. It is in the humbler and less remarkable portions of the vegetable kingdom that discoveries may be expected.

There may also be some productions still unknown, of value or beauty, especially on the more sheltered and better watered portions of the country. The expedition would, however, be probably best assisted in this respect by such information as the Society can afford regarding any productions of economical value of which it is of importance to procure specimens and fuller knowledge than is at present possessed.

Any further information on the above or upon other points which the Society are able to impart to the expedition will be thankfully received.

The Secretary stated that the different heads of enquiry indicated in this memorandum had been referred by the Council to the various Sub-Committees for report, but that they wished it to be understood that any information and suggestions which could be contributed by the members and others not in those Committees would be gratefully received.

5. From the Secretary, Punjab Government, a communication regarding the Dhurmsala meteorite, in reply to a letter addressed to the Lieut.-Governor of the Punjab.

The correspondence is subjoined.

To the Hon'ble Sir R. Montgomery, K. C. B.

*Licut.-Governor of Punjab.*

*Asiatic Society's Rooms.*

*Cal. 20th April, 1861.*

SIR,—I am directed by the Council of the Asiatic Society to solicit your intervention to enable them to obtain more accurate detailed information than has yet reached them about the phenomena attending the fall of the great meteorite at Dhurmsala in August last. A reference on this subject has lately been made to the Society at the instance of the authorities of the British Museum, and the Supreme Government has requested us to supply all the information we have been able to collect. Before replying, we are anxious to obtain more precise information on the following points:—

1. It is stated that whilst the sound of the various reports said to have been heard lasted, “the ground trembled and shook convulsively” proof of this is much needed. Was anything upset? If so, in what direction? Could the sensation of trembling have arisen from the commotion of the atmosphere?

2. Additional evidence of the occurrence of the flame of fire, said to have been seen, and the direction of its motion.

3. Proof that the flash or flame preceded the report.

Did it precede all the reports? There are stated to have been four or five distinct reports. If so, was the length of interval noted? This would give the means of calculating the distance of the mass when the explosion took place.

4. Any additional evidence of the lights in the heavens, said to have been observed, described as being like fire balloons.

5. The actual weight of any specimens found; one is said to have been about 4 *maunds*!!

6. Above all, *any* and *every proof* of the remarkable fact stated by more than one person, but very possibly only a repetition of the same hearsay evidence, that portions of the mass were *icy cold*, when taken up immediately after the fall, so cold that the men had to drop them immediately, their fingers being benumbed by the intensity of the cold. This point is of special interest, and calls for the most precise and distinct proof.

Very small, and some of them doubtful fragments of this remarkable meteorite have as yet reached the Society. We shall be glad to obtain as many and as large specimens as possible for communication to the various scientific bodies in Europe, who are engaged in investigating these deeply interesting cosmical phenomena.

Our Society will be under great obligation to you for any aid you can give in elucidating the actual facts of this extraordinary fall.

I have, &c.,

(Signed)

W. S. ATKINSON,

*Hony. Secy. As. Society.*

To the Honorary Secretary, Asiatic Society, Calcutta.

*Dated Lahore, 1st May, 1861.*

SIR,—In reply to your letter of the 20th April, I am directed to forward, for the information of the Society, copies of two letters from Mr. R. Saunders, Deputy Commissioner of Kangra, giving all the accounts which are obtainable of the fall of meteorites at Dhurmsala last year.

I regret that no specimens are now procurable to be furnished to the Society.

I have, &c.,

(Signed)

R. H. DAVIES,

*Secy. to Govt. Punjab.*

The first of these letters has already been published in the Society's Journal, No. IV. of 1860, p. 412.

The second is subjoined.

“With reference to your No. 683, dated 4th instant, I have the honor to state, that I have been making further inquiries with regard to the Meteorite that fell at Dhurmsala.

No fresh information can, however, be obtained beyond that contained in my No. 927, dated 28th July, to the orders of the Punjab Government.

I beg to append copy of a letter received from Monsieur Haidinger, Director General of the Imperial Geological Institute of Austria, dated Vienna, 14th November, 1860, on the subject of these meteoric stones.

In reply to this letter, I forwarded a copy *in extenso* of my account of the fall of the Aerolite referred to above, and begged the favour of their furnishing copies to each of the Institutions for which specimens were requested

I packed a box with 14 specimens of the Aerolite and despatched this to the Private Secretary of His Excellency the Governor General, with a request that he would, after taking out certain specimens which were intended for His Excellency the Governor General, forward the box to Vienna, in the manner directed.

One of the specimens was, as will be observed from the letter, intended for the British Museum.

I have, however, now sent the only remaining two specimens\* I could procure to Lahore for transmission to the Secretary of State for India, either for presentation to the British Museum or the Museum attached to the late India House, or for the acceptance of Her most Gracious Majesty Queen Victoria.

The specimen now sent is the largest of any that has been despatched from Dhurmsala, and being beyond the weight authorized for Banghy parcels, I was under the necessity of forwarding it to Jullunder by coolies and thence by Government Bullock Train to Lahore.

When worked up into handles for walking sticks, riding whips, the metallic substance is clearly visible.

As to the precise form of the Aerolite, no positive information could be obtained, for it was found in fragments, and its intense coldness has been mentioned in the report before submitted.

The original of the letter from Vienna, together with a printed paper giving the falls of former meteorites, and an account of them has been already forwarded to His Excellency the Governor General in India.

The specimens for Lahore have been forwarded under separate covers."

The Secretary read some extracts from a report from Major H. Green, Political Agent at Khelat, communicated by the Government of India, giving an interesting account of the supposed origin and present condition of some of the Belooch tribes.

Mr. Obbard drew the attention of the meeting to a series of specimens of soil from the bed of the Hooghly, which he had brought for exhibition.

\* No. 1 of the fragment that fell at Bowarna.

No. 2 of the large stone that fell at Dhurmsala.

He remarked that the collection was at present very imperfect, and that his only object in noticing it now, was to indicate the result which he wished to realize.

It was his hope that with the use of the microscope, by Geological analogy, the original loci of these different kinds of detritus might be determined and that thereby light might be thrown on the vexed question of the deterioration of the Hooghly; an enquiry which was most interesting both in a commercial and scientific point of view.

An examination of the small collection on the table would shew that almost every specimen differed essentially from all the rest.

A conversation ensued, in the course of which several members remarked on the great interest which would attach to this enquiry.

Mr. Cowell read a short paper comparing the Persian version of the legend of Gyges' ring, as found in the Persian poet Nizámí, with the well known story in Plato's Republic.

Thanks were voted to Mr. Cowell for his interesting paper.

The Officiating Librarian submitted the usual monthly Report.

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#### LIBRARY.

The following additions were made to the Library since the last meeting.

##### *Presented.*

Selections from the Records of the Government of Bengal, No. 36. Parts 1 and 2.—Containing papers relating to Irrigation in Bengal and the Maghasani Hills as a Sanatorium.—BY THE BENGAL GOVT.

Selections from the Records of the Government of India (Military Department) No. 1.—Containing Report on the nature and extent of the Sanitary establishments for European troops in the Bengal, Madras and Bombay Presidencies.—BY THE GOVT. OF INDIA.

A pamphlet containing demonstration of a Lunar Tidal wave in the North American Lakes. By Lieut.-Col. J. D. Graham.—BY THE AUTHOR.

The Oriental Baptist for May 1861.—BY THE EDITOR.

The Calcutta Christian Observer for May 1861.—BY THE EDITOR.

Journal of the Agricultural and Horticultural Society of India, Vol. XI. Part IV.—BY THE SOCIETY.

Ninth Annual Report of the British Indian Association for 1860. Pamphlet.—BY THE ASSOCIATION.

Petition against the Income Tax, of the Zemindars of Bengal, Behar and Orissa to the Imperial Parliament.—BY THE SAME.



History of Commerce with India before the existence of the East India Company, being a lecture delivered at St. Paul's School, February 5, 1861, by E. B. Cowell, Esq. M. A.—BY THE AUTHOR.

Proceedings of the Royal Society of London, Vol. XI. No. 43.—BY THE SOCIETY.

Proceedings of the Royal Geographical Society of London, Vol. V. No. 1.

Journal Asiatique Cinquième Série. Tome XVII. No. 65.—BY THE PARIS ASIATIC SOCIETY.

Zeitschrift der Deutschen Morgenländischen Gesellschaft. Band XV. Heft. 1.—BY THE SOCIETY.

*Exchanged.*

The Athenæum for March, 1861.

The Philosophical Magazine, No. 140, for April, 1861.

*Purchased.*

Revue des Deux Mondes for March and April, 1861.

Comptes Rendus, Tome 52, Nos. 9 to 12.

The Annals and Magazine of Natural History, Vol. 7, No. 40.

Abhandlungen für die Kunde des Morgenlandes, Band II. No. 2.

Revue et Magasin De Zoologie, No. 2 of 1861.

The American Journal of Science and Arts, Vol. XXXI. No. 92.

Deutsches Wörterbuch, Dritten Bandes, fünfte Lieferung.

Zoological Sketches, Part 13. By Joseph Wolf, with notes by P. L. Selater

The Literary Gazette, Vol. VI. Nos. 143 to 146.

The Edinburgh Review for April, 1861.

The Westminster Review for April, 1861.

Mason's Burmah.

LALGOPAL DUTT.

FOR JULY, 1861.

The monthly general meeting of the Asiatic Society of Bengal was held on the 3rd instant.

A. Grote, Esq., President, in the chair.

Presentations were received :—

1. From Baboo Rajendra Mallika, specimens of a Welsh Goat and a Gayal.

2. From M. Garcin de Tassy, a copy of a work containing his description of the monuments of Delhi.

3. From the Government of Bengal, a copy of "General Report on the Administration of British India for 1859-60."

4. From Mr. E. B. Cowell, a work entitled "*Bibliographie Japonaise*" being a catalogue of works in the Japanese language, by M. Leon Pages.

5. From M. Joseph Stabile of Milan, a copy of his work, containing "*Description de Quelques Coquilles Nouvelles ou peu Connues*" and another entitled "*Prospetto Sistematico-Statistico dei Molluschi Terrestri E Fluviali Viventi Nel Territorio Di Lugano.*"

6. From Mr. H. Collic, a specimen of a Boa-constrictor.

7. From Baboo Bhobany Prosad Dutt, Honorary Secretary Raja Radha Kant Testimonial Committee, a memorial portrait of the Rajah.

Read letters from Rev. W. Ayerst and Major W. E. Warrand, expressing their desire to withdraw from the Society.

The following gentlemen, duly proposed at the last meeting, were balloted for and elected ordinary members :—

Oliver R. Crockett, Esq. ; J. J. T. H. Asphar, Esq. ; and J. W. McCrindle, Esq., M. A. ;—Dr. R. Gosche, of Berlin, was also balloted for and elected a corresponding member.

The following gentleman was named for ballot at the next meeting :—

Nawab Mahommed Khazim Ali Khan Bahadur, of Rampore, near Moradabad ; proposed by Mr. Atkinson, seconded by the President.

Communications were received :—

1. From the Under-Secretary to the Government of India, Home Department, a copy of two letters from the Superintendent of Port Blair, reporting further intercourse with the aborigines of the Andaman Islands.

2. From the Under-Secretary to the Government of India, Foreign Department, a copy of a letter with enclosure from the Commissioner of the Tenasserim and Martaban Provinces, regarding three Andaman aborigines now at Moulmein.

3. From Lieutenant-Colonel A. Fytche, a paper entitled "*A Note on certain Aborigines of the Andaman Islands.*"

4. From Baboo Radhanauth Sikdar, abstracts of Meteorological observations taken at the Surveyor General's Office in November and December last.

5. From the Under-Secretary to the Government of Bengal, a copy of a report relative to a very severe storm that passed over the district of Sylhet on the 6th March last.

6. From Lieutenant A. Duff, Deputy Commissioner, Thyet Myo, through Mr. W. T. Blanford, a paper containing an account of the Nat-Mee or the Spirit-Fire, a burning hillock in the Province of Pegu.

The paper was read as follows :—

“ I had frequently heard vague rumours of a burning hill in the Kamruah township, but believed that if such a thing really had any existence, it was situated in the Arracan hills, and was probably a volcano similar to that near Thyouk Phyo. In a recent tour with a friend down the valley of the Punnee stream at the village of Pun, where we bivouacked as usual, a number of cultivators from the adjoining villages came in to talk about their cultivation, &c.; and I overheard some villagers from Nat-Mee say, in reply to a question from some one—“ Yes, it is still burning” (or shining).\* I asked what was referred to, and was informed that it was the Spirit Fire from which the village of Nat-Mee† got its name; that it was a place with a heap of stones out of which fire issued; that generally about the change of the year (Burman) the fire was most manifest, but that sometimes it was not to be seen; that in such cases the person visiting the place had merely to deposit some light inflammable substance near the heap of stones, make a genuflexion towards it, and say—‘ Oh great lord! manifest thyself to me thy slave,’ when the spirit would instantly send fire out of the stones and burn up the substance deposited.

“ During my various rambles through different parts of Burmah, I had heard all manner of wild stories of Pagodas emitting fire, &c., &c.; and these stories were frequently declared to be fact by people living only a few miles distant from the scene of the marvel; so that it was only on arriving at the very spot that one could clearly ascertain that such a story had no more foundation than that of the three black crows of immortal memory. When, therefore, my informants came to the statement that the fire *might* not be visible if I went to see it, but certainly would if the proper address were made to the Nat or Spirit, I must confess that I began to look upon the whole thing as a myth; but on talking it over with my companion we resolved that, as the village of Nat-Mee lay in our proposed route

\* The Burmese word used might mean either.

† From Nat, a spirit; and Mee, fire.

for the next day, we certainly should go and see whatever was to be seen.

“Next morning, after a pleasant ride of about four miles down the valley of the Punnee, we approached the village of Nat-Mee. ‘Well, where is the fire?’ we ask. ‘Oh it is not here; it is over there the other side of the stream’ is the reply. Belief in the fire goes down instantly to a degree considerably below zero. However, we cross the stream to a small suburb of Nat-Mee called Thyatas; we pass this; we meet some villagers, and our guide asks them—‘Is it still burning?’ ‘Don’t know’ is the reply. Belief in fire goes down into the bulb of our mental thermometers. However, we insist on going to the spot, and are led off the road across some cultivation, till we come to a belt of jungle with a foot-path through it. Here we have to dismount, and walking on for about a hundred yards, we come to a little hillock up which we are led. On the top of this hillock is a large heap of stones, and going round to the opposite side of it from that we had approached by, we see the Spirit-Fire. Yes, there it is. Out of the stones in two or three places comes a bright flame, flickering and burning; at a little distance from the heap of stones, where there are some cracks in the ground, more flame. In this instance, the marvel has proved true. There is nothing in the appearance of the hillock itself, or the heap of stones, differing from any other hillock or any other heap of stones in this part of the country; no appearance of boiling lava, violent upheavals, or any of those convulsions with which one is accustomed to associate the idea of subterranean fire. The ground and the stones were not even hot, except in the places where the fire was actually burning; the soil was gravelly, and at one place where the flame was issuing from a crack, I stirred up the gravel with a stick. The effect produced I can only compare to that produced by stirring up a plum-pudding in which brandy is burning. The flame spread itself and flickered about the gravel just as the burning brandy does about the pudding; but just as in that case the pudding is not burnt, so in this the gravel did not become extremely hot, and could be handled, though some of the stones in places when the fire came steadily were all but red-hot. Query—What was the substitute for the brandy in this case? There was at times a slight simmering noise, but not so loud as that of a boiling kettle. We remained on the spot for some time and then proceeded to our

next halting place, where I gathered from the inhabitants the following particulars regarding this strange phenomenon. The oldest inhabitant I could get hold of, who had been at Nat-Mee for some 60 years, remembered no difference in the hillock or heap of stones from their present condition. He believed that the latter had been collected there by people who came to see the fire, long ago, each heaping up one or two on the spot. And the appearance of the cairn strongly bears out this opinion. The flames used to burn steadily all the year round, and even in the rains never went out. They could not be extinguished by water. For the last eight or nine years, however, they have been more fitful, only burning for two or three months every year at the change of the Burman year. They had been burning for about six weeks when we saw them. They never were known to do any harm, to make much more noise, or to extend over much more space than when we saw them; but everybody knew that if all the fires in the village were not put out once a year and relit from this, the village would be burnt. Unfortunately, neither my companion nor myself are geologists, but the conclusion we came to regarding the phenomenon was that it was some inflammable gas issuing from the earth. There was no apparent sign of any recent volcanic convulsion—no tradition of any such; while a very slight explosive force would derange the heap of stones and scatter them in all directions. Yet, as far as we could ascertain, the heap had been much in its present condition from time immemorial. I picked up on the spot a tradition ascribing the names of all the old villages in the neighbourhood to what had taken place in days of yore with the Spirit of the Fire. If good for nothing else, it serves to show that the fire must have been much in its present condition when these villages were founded, whenever that may have been; and I annex a translation of it. Although unable to give any scientific description of this phenomenon, perhaps these notes may draw the attention of some one capable of doing so, to it. The distance of Nat-Mee from Thayet Myo is about 30 miles. The road is good in the dry weather; and in the latter half of it there are numerous villages.”

#### THE LEGEND OF NAT-MEE OR THE SPIRIT-FIRE.

*Translated from the Burmese.*

“Long, long ago there lived in the village now called Nat-Mee a man who gained his living as a blacksmith. When his time was



come he died and became a Nat ; but still he loved his old home and hankered after his old occupation ; so he established the Spirit-Fire on a hill near the village, and there continued his old trade ; hence the village came to be called Nat-Mee. Whenever a villager wanted a *dha* or an axe, or a spade, he took the iron to the fire, and depositing it there said ‘Oh my lord, make this iron into a *dha*,’ or an axe, &c., as the case might be, and returning for it next day, he would find his iron fashioned into the article he wanted, whether *dha*, axe, or spade, but no man ever saw the spirit at his labour.

“At last, one day, a man of the Khyen race brought a *dha*, and depositing it by the fire with a piece of iron said—‘Oh my lord ! weld me on an edge to this *dha*’ and went his way. Now the Khyen was a man of a curious disposition ; so next morning he got up very early, and climbing the hill, hid himself in the jungle near the fire. When it got light he peeped out and saw the spirit in the form of a man wearing a red *putsc* and a red turban, working at the *dha*. So the Khyen called out—“Oh my lord ! have you not finished my *dha* yet ? Let me have it quickly, I pray you,” but the Nat being enraged at being discovered at his labours by a prying Khyen, took the *dha* out of the fire, red-hot as it was, and casting it at him, hit him on the cheek ; and the Khyen in great fear fled from the spot, and so great was his fear that he never stopped to examine his wound nor even felt it, till he had run about a *dein*\* and a half ; and then he stopped for a little and rubbed his cheek with his hand, whence that spot was called *Pa-Bwoot* (cheek-rub) and is so called to this day.

“But the Khyen was too terrified to stop ; so he ran on for about a mile further, and there sitting down, was seized with a violent fit of trembling ; hence that spot was called *Toon* (*Tremble*) even unto this day. And when the trembling was over, the Khyen got up, and though his fear urged him to fly, the fatigue he had undergone and the pain of his wound rendered his steps slow and uncertain ; but he struggled on for about a *dein* further, and there he was obliged to stop ; and the blister on his cheek burst, and his cheek swelled up and became one great sore, and he was unable to move for many days ; so he remained in that place and hence it was called *Pouk-Poo-Ga* (burst-hot-swollen). After this the Nat never again would labour for the villagers ; but still his fire burns near his old home,

\* About 3 miles.

and once in every year every fire in the village is extinguished and rekindled from the Spirit-Fire ; for there is an old tradition handed down from time immemorial, that whosoever of the villagers neglects this tribute of respect to the Spirit of the Fire, his house and all that he has will inevitably perish in flames ere a year goes by."

"Note. The villages referred to above are all now in existence. I have written the Burmese names above, and the meaning of each separate syllable in English, below them."

Mr. Oldham remarked that, in all probability, the phenomenon so admirably described by Lieut. Duff was due to a small and slight exudation of petroleum which had taken fire, and had been ignited at the changes of the year, as stated, by the burning of the adjoining jungles. There were several such small outbursts of petroleum along this range of hills, and several of them were constantly on fire. The heap of stones described by Lieut. Duff was clearly the result of heaping up by visitors.

The Officiating Librarian submitted the usual monthly report.

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#### LIBRARY.

The following accessions were made to the Library since the meeting in June.

#### *Presented.*

Description des Monuments De Delhi en 1852. Par M. Garcin De Tassy, Paris, 1861.—BY THE AUTHOR.

Prospetto Sistemático—Statistico dei Molluschi Terrestri E Fluviali Venti Nel Territorio Di Lugano. Dell' Ab. Giuseppe Stabile—Milano, 1859.—BY THE AUTHOR.

Description de Quelques Coquilles Nouvelles Ou Peu Connues.—Par M. L'Abbé Joseph Stabile.—BY THE AUTHOR.

General Report on the administration of the several Presidencies and Provinces of British India during the year 1859-60, Vols. 1, 2 and 3, with Appendices.—BY THE BENGAL GOVT.

Bibliographie Japonaise ou Catalogue des Ouvrages Relatifs Au Japon. Par M. Leon Pages, Paris, 1859.—BY MR. E. B. COWELL.

The Annals of Indian Administration, Part 2, Vol. 5.—BY THE BENGAL GOVT.

Kitábo' L-Boldán of Al-Ja Qübbi, Edited by A. W. T. Juynboll, Lugduni—Batavorum, 1861.—BY THE BATAVIAN ACADEMY.

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